Mathematica 11.3 Integration Test Results

on the problems in "4 Trig functions\4.3 Tangent"

Test results for the 387 problems in "4.3.0 (a trg)^m (b tan)^n.m"

- **Problem 59: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Sin}[a+b\,x]^3\,\sqrt{d\,\text{Tan}[a+b\,x]}\,dx$$

Optimal (type 4, 105 leaves, 5 steps):

$$-\frac{5\,d\,\text{Sin}[a+b\,x]}{6\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{d\,\text{Sin}[a+b\,x]^3}{3\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{5\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{12\,b}$$

Result (type 4, 139 leaves):

$$-\Big(\text{Cos}[2\,(a+b\,x)]\,\text{Sec}[a+b\,x]\left(-5\,(-1)^{1/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\text{Sec}[a+b\,x]^2+(-6+\text{Cos}[2\,(a+b\,x)])\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)\sqrt{d\,\text{Tan}[a+b\,x]}\Big)\Big/\left(6\,b\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 60: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Sin}[a+b\,x]\,\sqrt{d\,\text{Tan}[a+b\,x]}\,dx$$

Optimal (type 4, 75 leaves, 4 steps):

$$-\frac{d\,\text{Sin}[a+b\,x]}{b\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{2\,b}$$

Result (type 4, 85 leaves):

$$-\frac{\text{Cos}[a+b\,x]\left((-1)^{1/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}+\sqrt{\text{Tan}[a+b\,x]}\right)\sqrt{d\,\text{Tan}[a+b\,x]}}{b\,\sqrt{\text{Tan}[a+b\,x]}}$$

- **Problem 61: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Csc}[a+b\,x]\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}\,dx$$

Optimal (type 4, 47 leaves, 3 steps):

$$\frac{\mathrm{Csc}[a+b\,x]\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{b}$$

Result (type 4, 73 leaves):

$$-\frac{2\,(-1)^{1/4}\,\mathrm{Cos}[a+b\,x]\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{b\,\sqrt{\mathrm{Tan}[a+b\,x]}}$$

- **Problem 62: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Csc}[a+b\,x]^3\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}\,dx$$

Optimal (type 4, 77 leaves, 4 steps):

$$-\frac{2\,d\,\mathrm{Csc}[a+b\,x]}{3\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{2\,\mathrm{Csc}[a+b\,x]\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{3\,b}$$

Result (type 4, 115 leaves):

$$\left(2\,\mathrm{Cos}[2\,(a+b\,x)]\,\mathrm{Csc}[a+b\,x]^3\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}\right.$$
$$\left.\left(\sqrt{\mathrm{Sec}[a+b\,x]^2}+2\,(-1)^{1/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\mathrm{Tan}[a+b\,x]^{3/2}\right)\right)\Big/\left(3\,b\,d\,\sqrt{\mathrm{Sec}[a+b\,x]^2}\,\left(-1+\mathrm{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 63: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Csc}[a+b\,x]^5\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}\,dx$$

Optimal (type 4, 105 leaves, 5 steps):

$$-\frac{4\,d\,\mathrm{Csc}[a+b\,x]}{7\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-\frac{2\,d\,\mathrm{Csc}[a+b\,x]^3}{7\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{4\,\mathrm{Csc}[a+b\,x]\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{7\,b}$$

Result (type 4, 124 leaves):

$$-\left(2\,d\,\mathrm{Cos}[2\,(a+b\,x)]\,\mathrm{Csc}[a+b\,x]^3\right.$$
$$\left.\left((-2+\mathrm{Cos}[2\,(a+b\,x)])\,\left(\mathrm{Sec}[a+b\,x]^2\right)^{3/2}-4\,(-1)^{1/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\mathrm{Tan}[a+b\,x]^{7/2}\right)\right)\Big/$$
$$\left(7\,b\,\sqrt{\mathrm{Sec}[a+b\,x]^2}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}\,\left(-1+\mathrm{Tan}[a+b\,x]^2\right)\right)$$

Problem 69: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sin}[a+b\,x]^3\,(d\,\text{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 110 leaves, 5 steps):

$$\frac{7\,d^3\,\text{Sin}[a+b\,x]^3}{3\,b\,(d\,\text{Tan}[a+b\,x])^{3/2}}-\frac{7\,d^2\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\text{Sin}[a+b\,x]}{2\,b\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{2\,d\,\text{Sin}[a+b\,x]^3\,\sqrt{d\,\text{Tan}[a+b\,x]}}{b}$$

Result (type 4, 156 leaves):

$$-\frac{1}{12\,b\,\text{Tan}[a+b\,x]^{3/2}}\Big(42\,(-1)^{3/4}\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}-42\,(-1)^{3/4}\,\text{Cos}[a+b\,x]$$
$$\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}+(17\,\text{Sin}[a+b\,x]-\text{Sin}[3\,(a+b\,x)])\,\sqrt{\text{Tan}[a+b\,x]}\Big)\,(d\,\text{Tan}[a+b\,x])^{3/2}$$

Problem 70: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Sin}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 76 leaves, 4 steps):

$$-\frac{3\,d^2\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\text{Sin}[a+b\,x]}{b\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{2\,d\,\text{Sin}[a+b\,x]\,\sqrt{d\,\text{Tan}[a+b\,x]}}{b}$$

Result (type 4, 128 leaves):

$$-\frac{1}{b\,\text{Tan}[a+b\,x]^{3/2}}\text{Cos}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}\,\Big(3\,(-1)^{3/4}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}-$$
$$3\,(-1)^{3/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}+\text{Tan}[a+b\,x]^{3/2}\Big)$$

Problem 71: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Csc}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 76 leaves, 4 steps):

$$-\frac{2\,d^2\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\text{Sin}[a+b\,x]}{b\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{2\,d\,\text{Sin}[a+b\,x]\,\sqrt{d\,\text{Tan}[a+b\,x]}}{b}$$

Result (type 4, 99 leaves):

$$\frac{1}{b\,\text{Tan}[a+b\,x]^{3/2}}2\,(-1)^{3/4}\,\text{Cos}[a+b\,x]$$
$$\left(-\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]+\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\right)\,\sqrt{\text{Sec}[a+b\,x]^2}\,(d\,\text{Tan}[a+b\,x])^{3/2}$$

Problem 72: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Csc}[a+b\,x]^3\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 102 leaves, 5 steps):

$$-\frac{4\,d^2\,\mathrm{Cos}[a+b\,x]}{b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-\frac{4\,d^2\,\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\mathrm{Sin}[a+b\,x]}{b\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{2\,d\,\mathrm{Csc}[a+b\,x]\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{b}$$

Result (type 4, 129 leaves):

$$-\frac{1}{b\,\sqrt{\mathrm{Sec}[a+b\,x]^2}}2\,d\,\mathrm{Csc}[a+b\,x]\,\left(\sqrt{\mathrm{Sec}[a+b\,x]^2}+2\,(-1)^{3/4}\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\mathrm{Tan}[a+b\,x]}-\right.$$
$$\left.2\,(-1)^{3/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\mathrm{Tan}[a+b\,x]}\right)\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}$$

Problem 78: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Sin}[a+b\,x]^3\,(d\,\mathrm{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 137 leaves, 6 steps):

$$\frac{5\,d^3\,\mathrm{Sin}[a+b\,x]}{2\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{d^3\,\mathrm{Sin}[a+b\,x]^3}{b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-$$
$$\frac{5\,d^2\,\mathrm{Csc}[a+b\,x]\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{4\,b}+\frac{2\,d\,\mathrm{Sin}[a+b\,x]^3\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 200 leaves):

$$\frac{\mathrm{Cot}[a+b\,x]^2\,\left(-\frac{5}{2}\,\mathrm{Cos}[a+b\,x]-\frac{1}{12}\,\mathrm{Cos}[3\,(a+b\,x)]+\frac{2}{3}\,\mathrm{Sec}[a+b\,x]\right)\,(d\,\mathrm{Tan}[a+b\,x])^{5/2}}{b}+\frac{1}{24\,b\,\mathrm{Tan}[a+b\,x]^{5/2}}(d\,\mathrm{Tan}[a+b\,x])^{5/2}$$
$$\left(\frac{60\,(-1)^{1/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\,\mathrm{Sec}[a+b\,x]^3}{\left(1+\mathrm{Tan}[a+b\,x]^2\right)^{3/2}}+\frac{106\,\mathrm{Cos}[2\,(a+b\,x)]\,\mathrm{Csc}[a+b\,x]\,\mathrm{Sec}[a+b\,x]^2\,\mathrm{Tan}[a+b\,x]^{3/2}}{\left(1-\mathrm{Tan}[a+b\,x]^2\right)\,\left(1+\mathrm{Tan}[a+b\,x]^2\right)}\right)$$

Problem 79: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Sin}[a+b\,x]\,(d\,\mathrm{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 108 leaves, 5 steps):

$$\frac{5\,d^3\,\mathrm{Sin}[a+b\,x]}{3\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-\frac{5\,d^2\,\mathrm{Csc}[a+b\,x]\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{6\,b}+\frac{2\,d\,\mathrm{Sin}[a+b\,x]\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 133 leaves):

$$-\left(\text{Cos}[2\,(a+b\,x)]\,\text{Csc}[a+b\,x]\,\sqrt{\text{Sec}[a+b\,x]^2}\right.$$
$$\left(10\,(-1)^{1/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]+(7+3\,\text{Cos}[2\,(a+b\,x)])\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)$$
$$\left.(d\,\text{Tan}[a+b\,x])^{5/2}\right)\Big/\left(6\,b\,\text{Tan}[a+b\,x]^{3/2}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 80: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Csc}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 80 leaves, 4 steps):

$$-\frac{d^2\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{3\,b}+\frac{2\,d\,\text{Csc}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 87 leaves):

$$\frac{2\,\text{Csc}[a+b\,x]\,\left(\frac{(-1)^{1/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]}{\sqrt{\text{Sec}[a+b\,x]^2}}+\sqrt{\text{Tan}[a+b\,x]}\right)\,(d\,\text{Tan}[a+b\,x])^{5/2}}{3\,b\,\text{Tan}[a+b\,x]^{3/2}}$$

- **Problem 81: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Csc}[a+b\,x]^3\,(d\,\text{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 80 leaves, 4 steps):

$$\frac{2\,d^2\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{3\,b}+\frac{2\,d\,\text{Csc}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 88 leaves):

$$\frac{2\,\text{Csc}[a+b\,x]\,\left(-\frac{2\,(-1)^{1/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]}{\sqrt{\text{Sec}[a+b\,x]^2}}+\sqrt{\text{Tan}[a+b\,x]}\right)\,(d\,\text{Tan}[a+b\,x])^{5/2}}{3\,b\,\text{Tan}[a+b\,x]^{3/2}}$$

- **Problem 82: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Csc}[a+b\,x]^5\,(d\,\text{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 110 leaves, 5 steps):

$$-\frac{4\,d^3\,\text{Csc}[a+b\,x]}{3\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{4\,d^2\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{3\,b}+\frac{2\,d\,\text{Csc}[a+b\,x]^3\,(d\,\text{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 110 leaves):

$$-\frac{1}{3\,b\,\sqrt{\text{Sec}[a+b\,x]^2}}2\,d\,\text{Csc}[a+b\,x]^3\left(\text{Cos}[2\,(a+b\,x)]\,\sqrt{\text{Sec}[a+b\,x]^2}+2\,(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\text{Sin}[2\,(a+b\,x)]\,\sqrt{\text{Tan}[a+b\,x]}\right)(d\,\text{Tan}[a+b\,x])^{3/2}$$

- **Problem 83: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Csc}[a+b\,x]^7\,(d\,\text{Tan}[a+b\,x])^{5/2}\,dx$$

Optimal (type 4, 140 leaves, 6 steps):

$$-\frac{40\,d^3\,\text{Csc}[a+b\,x]}{21\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{20\,d^3\,\text{Csc}[a+b\,x]^3}{21\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}+\frac{40\,d^2\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{21\,b}+\frac{2\,d\,\text{Csc}[a+b\,x]^5\,(d\,\text{Tan}[a+b\,x])^{3/2}}{3\,b}$$

Result (type 4, 130 leaves):

$$-\frac{1}{21\,b\,\sqrt{\text{Sec}[a+b\,x]^2}}d^2\,\text{Csc}[a+b\,x]\left((1+10\,\text{Cos}[2\,(a+b\,x)]-5\,\text{Cos}[4\,(a+b\,x)])\,\text{Csc}[a+b\,x]^3\,\text{Sec}[a+b\,x]\,\sqrt{\text{Sec}[a+b\,x]^2}+80\,(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Tan}[a+b\,x]}\right)\sqrt{d\,\text{Tan}[a+b\,x]}$$

- **Problem 89: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\text{Sin}[a+b\,x]^5}{\sqrt{d\,\text{Tan}[a+b\,x]}}\,dx$$

Optimal (type 4, 107 leaves, 5 steps):

$$-\frac{7\,d\,\text{Sin}[a+b\,x]^3}{30\,b\,(d\,\text{Tan}[a+b\,x])^{3/2}}-\frac{d\,\text{Sin}[a+b\,x]^5}{5\,b\,(d\,\text{Tan}[a+b\,x])^{3/2}}+\frac{7\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,2\right]\text{Sin}[a+b\,x]}{20\,b\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}$$

Result (type 4, 153 leaves):

$$\frac{1}{120\,b\,\sqrt{d\,\text{Tan}[a+b\,x]}}\text{Cos}[a+b\,x]\,\sqrt{\text{Tan}[a+b\,x]}\left(42\,(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}-42\,(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}+(25-14\,\text{Cos}[2\,(a+b\,x)]+3\,\text{Cos}[4\,(a+b\,x)])\,\text{Tan}[a+b\,x]^{3/2}\right)$$

- **Problem 90: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\text{Sin}[a+b\,x]^3}{\sqrt{d\,\text{Tan}[a+b\,x]}}\,dx$$

Optimal (type 4, 79 leaves, 4 steps):

$$-\frac{d\,\mathrm{Sin}[a+b\,x]^3}{3\,b\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}+\frac{\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\mathrm{Sin}[a+b\,x]}{2\,b\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}$$

Result (type 4, 154 leaves):

$$-\frac{1}{12\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\mathrm{Cos}[a+b\,x]\left(-6\,(-1)^{3/4}\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+6\,(-1)^{3/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+\mathrm{Sec}[a+b\,x]\,(-5\,\mathrm{Sin}[a+b\,x]+\mathrm{Sin}[3\,(a+b\,x)])\,\sqrt{\mathrm{Tan}[a+b\,x]}\right)\sqrt{\mathrm{Tan}[a+b\,x]}$$

- **Problem 91: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sin}[a+b\,x]}{\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\,dx$$

Optimal (type 4, 47 leaves, 3 steps):

$$\frac{\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\mathrm{Sin}[a+b\,x]}{b\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}$$

Result (type 4, 126 leaves):

$$\frac{1}{b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\mathrm{Cos}[a+b\,x]\,\sqrt{\mathrm{Tan}[a+b\,x]}\,\left((-1)^{3/4}\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}-(-1)^{3/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+\mathrm{Tan}[a+b\,x]^{3/2}\right)$$

- **Problem 92: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Csc}[a+b\,x]}{\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\,dx$$

Optimal (type 4, 72 leaves, 4 steps):

$$-\frac{2\,\mathrm{Cos}[a+b\,x]}{b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-\frac{2\,\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\mathrm{Sin}[a+b\,x]}{b\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}$$

Result (type 4, 135 leaves):

$$-\frac{1}{b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}2\,\mathrm{Cos}[a+b\,x]\,\left(\mathrm{Sec}[a+b\,x]^2+(-1)^{3/4}\,\mathrm{EllipticE}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}\,\sqrt{\mathrm{Tan}[a+b\,x]}-(-1)^{3/4}\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right)$$

Problem 93: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csc}[a+b x]^3}{\sqrt{d\,\text{Tan}[a+b x]}}\,dx$$

Optimal (type 4, 102 leaves, 5 steps):

$$-\frac{2\,d\,\text{Csc}[a+b x]}{5\,b\,(d\,\text{Tan}[a+b x])^{3/2}}-\frac{4\,\text{Cos}[a+b x]}{5\,b\,\sqrt{d\,\text{Tan}[a+b x]}}-\frac{4\,\text{EllipticE}\left[a-\frac{\pi}{4}+b x,\,2\right]\,\text{Sin}[a+b x]}{5\,b\,\sqrt{\text{Sin}[2 a+2 b x]}\,\sqrt{d\,\text{Tan}[a+b x]}}$$

Result (type 4, 149 leaves):

$$\left(\text{Sec}[a+b x]\left((-3+\text{Cos}[2(a+b x)])\,\text{Csc}[a+b x]^2\sqrt{\text{Sec}[a+b x]^2}-4(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Tan}[a+b x]}+4(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Tan}[a+b x]}\right)\right)\Big/\left(5\,b\sqrt{\text{Sec}[a+b x]^2}\,\sqrt{d\,\text{Tan}[a+b x]}\right)$$

Problem 99: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sin}[a+b x]^3}{(d\,\text{Tan}[a+b x])^{3/2}}\,dx$$

Optimal (type 4, 112 leaves, 5 steps):

$$-\frac{\text{Sin}[a+b x]}{6\,b\,d\,\sqrt{d\,\text{Tan}[a+b x]}}+\frac{\text{Sin}[a+b x]^3}{3\,b\,d\,\sqrt{d\,\text{Tan}[a+b x]}}+\frac{\text{Csc}[a+b x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b x,\,2\right]\sqrt{\text{Sin}[2 a+2 b x]}\,\sqrt{d\,\text{Tan}[a+b x]}}{12\,b\,d^2}$$

Result (type 4, 102 leaves):

$$-\frac{1}{24\,b\,d^2\sqrt{\text{Sec}[a+b x]^2}}\text{Csc}[a+b x]\left(\sqrt{\text{Sec}[a+b x]^2}\,\text{Sin}[4(a+b x)]+4(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Tan}[a+b x]}\right)\sqrt{d\,\text{Tan}[a+b x]}$$

Problem 100: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sin}[a+b x]}{(d\,\text{Tan}[a+b x])^{3/2}}\,dx$$

Optimal (type 4, 79 leaves, 4 steps):

$$\frac{\text{Sin}[a+b x]}{b\,d\,\sqrt{d\,\text{Tan}[a+b x]}}+\frac{\text{EllipticF}\left[a-\frac{\pi}{4}+b x,\,2\right]\,\text{Sec}[a+b x]\,\sqrt{\text{Sin}[2 a+2 b x]}}{2\,b\,d\,\sqrt{d\,\text{Tan}[a+b x]}}$$

Result (type 4, 126 leaves):

$$\left(\text{Cos}[2\,(a+b\,x)]\,\text{Sec}[a+b\,x]\,\left((-1)^{1/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\text{Sec}[a+b\,x]^2-\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right.\right.$$
$$\left.\left.\text{Tan}[a+b\,x]^{3/2}\right)\right)\Big/\left(b\,\sqrt{\text{Sec}[a+b\,x]^2}\,(d\,\text{Tan}[a+b\,x])^{3/2}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 101: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Csc}[a+b\,x]}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps) :

$$-\frac{2\,\text{Csc}[a+b\,x]}{3\,b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{3\,b\,d^2}$$

Result (type 4, 110 leaves) :

$$\left(2\,\text{Cos}[2\,(a+b\,x)]\,\text{Sec}[a+b\,x]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\left(\sqrt{\text{Sec}[a+b\,x]^2}-(-1)^{1/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\text{Tan}[a+b\,x]^{3/2}\right)\right)\Big/$$
$$\left(3\,b\,(d\,\text{Tan}[a+b\,x])^{3/2}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 102: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Csc}[a+b\,x]^3}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 112 leaves, 5 steps) :

$$\frac{2\,\text{Csc}[a+b\,x]}{21\,b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{2\,\text{Csc}[a+b\,x]^3}{7\,b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{2\,\text{Csc}[a+b\,x]\,\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}{21\,b\,d^2}$$

Result (type 4, 136 leaves) :

$$\left(\text{Csc}[a+b\,x]^3\,\left((1+10\,\text{Cos}[2\,(a+b\,x)]+\text{Cos}[4\,(a+b\,x)])\,\left(\text{Sec}[a+b\,x]^2\right)^{3/2}-\right.\right.$$
$$\left.\left.8\,(-1)^{1/4}\,\text{Cos}[2\,(a+b\,x)]\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\text{Tan}[a+b\,x]^{7/2}\right)\right)\Big/$$
$$\left(42\,b\,d\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{d\,\text{Tan}[a+b\,x]}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 108: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Sin}[a+b\,x]^7}{(d\,\text{Tan}[a+b\,x])^{5/2}}\,dx$$

Optimal (type 4, 144 leaves, 6 steps) :

$$-\frac{\text{Sin}[a+b\,x]^3}{20\,b\,d\,(d\,\text{Tan}[a+b\,x])^{3/2}}-\frac{3\,\text{Sin}[a+b\,x]^5}{70\,b\,d\,(d\,\text{Tan}[a+b\,x])^{3/2}}+\frac{\text{Sin}[a+b\,x]^7}{7\,b\,d\,(d\,\text{Tan}[a+b\,x])^{3/2}}+\frac{3\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\text{Sin}[a+b\,x]}{40\,b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}\,\sqrt{d\,\text{Tan}[a+b\,x]}}$$

Result (type 4, 206 leaves):

$$\frac{\left(-\frac{3}{448}\,\mathrm{Sin}[a+b\,x]-\frac{29\,\mathrm{Sin}[3\,(a+b\,x)]}{2240}-\frac{9\,\mathrm{Sin}[5\,(a+b\,x)]}{2240}+\frac{1}{448}\,\mathrm{Sin}[7\,(a+b\,x)]\right)\mathrm{Tan}[a+b\,x]^3}{b\,(d\,\mathrm{Tan}[a+b\,x])^{5/2}}+$$

$$\left(3\,\mathrm{Sec}[a+b\,x]\,\mathrm{Tan}[a+b\,x]^{5/2}\left((-1)^{3/4}\,\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]-\right.\right.$$

$$\left.\left.(-1)^{3/4}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]+\frac{\mathrm{Tan}[a+b\,x]^{3/2}}{\sqrt{1+\mathrm{Tan}[a+b\,x]^2}}\right)\right)\bigg/\left(40\,b\,(d\,\mathrm{Tan}[a+b\,x])^{5/2}\sqrt{1+\mathrm{Tan}[a+b\,x]^2}\right)$$

- **Problem 109: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Sin}[a+b\,x]^5}{(d\,\mathrm{Tan}[a+b\,x])^{5/2}}\,dx$$

Optimal (type 4, 114 leaves, 5 steps):

$$-\frac{\mathrm{Sin}[a+b\,x]^3}{10\,b\,d\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}+\frac{\mathrm{Sin}[a+b\,x]^5}{5\,b\,d\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}+\frac{3\,\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,2\right]\mathrm{Sin}[a+b\,x]}{20\,b\,d^2\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\sqrt{d\,\mathrm{Tan}[a+b\,x]}}$$

Result (type 4, 151 leaves):

$$-\frac{1}{40\,b\,d^2\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\mathrm{Cos}[a+b\,x]$$

$$\left(-6\,(-1)^{3/4}\,\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+6\,(-1)^{3/4}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\right.$$

$$\left.\sqrt{\mathrm{Sec}[a+b\,x]^2}+(\mathrm{Sin}[4\,(a+b\,x)]-6\,\mathrm{Tan}[a+b\,x])\sqrt{\mathrm{Tan}[a+b\,x]}\right)\sqrt{\mathrm{Tan}[a+b\,x]}$$

- **Problem 110: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Sin}[a+b\,x]^3}{(d\,\mathrm{Tan}[a+b\,x])^{5/2}}\,dx$$

Optimal (type 4, 84 leaves, 4 steps):

$$\frac{\mathrm{Sin}[a+b\,x]^3}{3\,b\,d\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}}+\frac{\mathrm{EllipticE}\left[a-\frac{\pi}{4}+b\,x,2\right]\mathrm{Sin}[a+b\,x]}{2\,b\,d^2\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}\sqrt{d\,\mathrm{Tan}[a+b\,x]}}$$

Result (type 4, 144 leaves):

$$\frac{1}{6\,b\,d^2\sqrt{d\,\mathrm{Tan}[a+b\,x]}}\mathrm{Cos}[a+b\,x]\sqrt{\mathrm{Tan}[a+b\,x]}\left(3\,(-1)^{3/4}\,\mathrm{EllipticE}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}-\right.$$

$$\left.3\,(-1)^{3/4}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+(4+\mathrm{Cos}[2\,(a+b\,x)])\,\mathrm{Tan}[a+b\,x]^{3/2}\right)$$

Problem 111: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Sin}[a+b x]}{(d\,\text{Tan}[a+b x])^{5/2}}\,dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$-\frac{2\,\text{Sin}[a+b x]}{b\,d\,(d\,\text{Tan}[a+b x])^{3/2}}-\frac{3\,\text{EllipticE}\left[a-\frac{\pi}{4}+b x,\,2\right]\,\text{Sin}[a+b x]}{b\,d^2\,\sqrt{\text{Sin}[2 a+2 b x]}\,\sqrt{d\,\text{Tan}[a+b x]}}$$

Result (type 4, 142 leaves):

$$\frac{1}{2\,b\,d^3}\text{Csc}[a+b x]\left(-5+\text{Cos}[2\,(a+b x)]-\frac{6\,(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Tan}[a+b x]}}{\sqrt{\text{Sec}[a+b x]^2}}+\frac{6\,(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Tan}[a+b x]}}{\sqrt{\text{Sec}[a+b x]^2}}\right)\sqrt{d\,\text{Tan}[a+b x]}$$

Problem 112: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csc}[a+b x]}{(d\,\text{Tan}[a+b x])^{5/2}}\,dx$$

Optimal (type 4, 110 leaves, 5 steps):

$$-\frac{2\,\text{Csc}[a+b x]}{5\,b\,d\,(d\,\text{Tan}[a+b x])^{3/2}}+\frac{6\,\text{Cos}[a+b x]}{5\,b\,d^2\,\sqrt{d\,\text{Tan}[a+b x]}}+\frac{6\,\text{EllipticE}\left[a-\frac{\pi}{4}+b x,\,2\right]\,\text{Sin}[a+b x]}{5\,b\,d^2\,\sqrt{\text{Sin}[2 a+2 b x]}\,\sqrt{d\,\text{Tan}[a+b x]}}$$

Result (type 4, 157 leaves):

$$-\frac{1}{5\,b\,d^2\,\sqrt{d\,\text{Tan}[a+b x]}}2\,\text{Cos}[a+b x]\left(4\,(-1+2\,\text{Cos}[2\,(a+b x)])\,\text{Csc}[2\,(a+b x)]^2-3\,(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Sec}[a+b x]^2}\,\sqrt{\text{Tan}[a+b x]}+3\,(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\sqrt{\text{Sec}[a+b x]^2}\,\sqrt{\text{Tan}[a+b x]}\right)$$

Problem 113: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Csc}[a+b x]^3}{(d\,\text{Tan}[a+b x])^{5/2}}\,dx$$

Optimal (type 4, 140 leaves, 6 steps):

$$\frac{2\,\text{Csc}[a+b x]}{15\,b\,d\,(d\,\text{Tan}[a+b x])^{3/2}}-\frac{2\,\text{Csc}[a+b x]^3}{9\,b\,d\,(d\,\text{Tan}[a+b x])^{3/2}}+\frac{4\,\text{Cos}[a+b x]}{15\,b\,d^2\,\sqrt{d\,\text{Tan}[a+b x]}}+\frac{4\,\text{EllipticE}\left[a-\frac{\pi}{4}+b x,\,2\right]\,\text{Sin}[a+b x]}{15\,b\,d^2\,\sqrt{\text{Sin}[2 a+2 b x]}\,\sqrt{d\,\text{Tan}[a+b x]}}$$

Result (type 4, 204 leaves):

$$\frac{\left(\frac{2}{15}\,\text{Csc}[a+b\,x]+\frac{16}{45}\,\text{Csc}[a+b\,x]^3-\frac{2}{9}\,\text{Csc}[a+b\,x]^5-\frac{4}{15}\,\text{Sin}[a+b\,x]\right)\text{Tan}[a+b\,x]^3}{b\,(d\,\text{Tan}[a+b\,x])^{5/2}}+$$

$$\left(4\,\text{Sec}[a+b\,x]\,\text{Tan}[a+b\,x]^{5/2}\left((-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]-\right.\right.$$

$$\left.\left.(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]+\frac{\text{Tan}[a+b\,x]^{3/2}}{\sqrt{1+\text{Tan}[a+b\,x]^2}}\right)\right)\Big/\left(15\,b\,(d\,\text{Tan}[a+b\,x])^{5/2}\sqrt{1+\text{Tan}[a+b\,x]^2}\right)$$

- **Problem 115: Result unnecessarily involves higher level functions.**

$$\int(a\,\text{Sin}[e+f\,x])^{3/2}\sqrt{b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 88 leaves, 3 steps):

$$-\frac{2\,b\,(a\,\text{Sin}[e+f\,x])^{3/2}}{3\,f\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{4\,a^2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{3\,f\sqrt{a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 77 leaves):

$$-\frac{2\,b\left(\left(\text{Cos}[e+f\,x]^2\right)^{1/4}-\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{3}{2},\text{Sin}[e+f\,x]^2\right]\right)(a\,\text{Sin}[e+f\,x])^{3/2}}{3\,f\left(\text{Cos}[e+f\,x]^2\right)^{1/4}\sqrt{b\,\text{Tan}[e+f\,x]}}$$

- **Problem 117: Result unnecessarily involves higher level functions.**

$$\int\frac{\sqrt{b\,\text{Tan}[e+f\,x]}}{\sqrt{a\,\text{Sin}[e+f\,x]}}\,dx$$

Optimal (type 4, 50 leaves, 2 steps):

$$\frac{2\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,(e+f\,x),2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{f\sqrt{a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 69 leaves):

$$\frac{\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{3}{2},\text{Sin}[e+f\,x]^2\right]\text{Sin}[2\,(e+f\,x)]\sqrt{b\,\text{Tan}[e+f\,x]}}{2\,f\left(\text{Cos}[e+f\,x]^2\right)^{1/4}\sqrt{a\,\text{Sin}[e+f\,x]}}$$

- **Problem 118: Result unnecessarily involves higher level functions.**

$$\int\frac{\sqrt{b\,\text{Tan}[e+f\,x]}}{(a\,\text{Sin}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 107 leaves, 7 steps):

$$-\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}{a f \sqrt{a \,\text{Sin}[e+f x]}}-\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}{a f \sqrt{a \,\text{Sin}[e+f x]}}$$

Result (type 5, 66 leaves):

$$-\frac{2 \left(-\text{Cot}[e+f x]^2\right)^{3/4} \text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Csc}[e+f x]^2\right] (b \,\text{Tan}[e+f x])^{3/2}}{3 b f (a \,\text{Sin}[e+f x])^{3/2}}$$

Problem 119: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{b \,\text{Tan}[e+f x]}}{(a \,\text{Sin}[e+f x])^{5/2}} \, dx$$

Optimal (type 4, 86 leaves, 3 steps):

$$-\frac{b}{a^2 f \sqrt{a \,\text{Sin}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}+\frac{\sqrt{\text{Cos}[e+f x]} \,\text{EllipticF}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{b \,\text{Tan}[e+f x]}}{a^2 f \sqrt{a \,\text{Sin}[e+f x]}}$$

Result (type 5, 89 leaves):

$$\frac{b \left(-2 \left(\text{Cos}[e+f x]^2\right)^{1/4}+\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{3}{2},\text{Sin}[e+f x]^2\right] \text{Sin}[e+f x]^2\right)}{2 a^2 f \left(\text{Cos}[e+f x]^2\right)^{1/4} \sqrt{a \,\text{Sin}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}$$

Problem 120: Result unnecessarily involves higher level functions.

$$\int (a \,\text{Sin}[e+f x])^{5/2} (b \,\text{Tan}[e+f x])^{3/2} \, dx$$

Optimal (type 4, 126 leaves, 4 steps):

$$-\frac{24 a^2 b^2 \,\text{EllipticE}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{a \,\text{Sin}[e+f x]}}{5 f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}+\frac{12 a^2 b \sqrt{a \,\text{Sin}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}{5 f}-\frac{2 b (a \,\text{Sin}[e+f x])^{5/2} \sqrt{b \,\text{Tan}[e+f x]}}{5 f}$$

Result (type 5, 99 leaves):

$$\frac{1}{5 f \left(\text{Cos}[e+f x]^2\right)^{3/4}}$$

$$a^2 b \left(\left(\text{Cos}[e+f x]^2\right)^{3/4} (11+\text{Cos}[2 (e+f x)])-12 \,\text{Cos}[e+f x]^2 \,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{3}{2},\text{Sin}[e+f x]^2\right]\right) \sqrt{a \,\text{Sin}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}$$

Problem 122: Result unnecessarily involves higher level functions.

$$\int \sqrt{a \,\text{Sin}[e+f x]} (b \,\text{Tan}[e+f x])^{3/2} \, dx$$

Optimal (type 4, 84 leaves, 3 steps):

$$-\frac{4\, b^2\, \text{EllipticE}\left[\frac{1}{2}\, (e+f\, x),\, 2\right]\, \sqrt{a\, \text{Sin}[e+f\, x]}}{f\, \sqrt{\text{Cos}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}+\frac{2\, b\, \sqrt{a\, \text{Sin}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}{f}$$

Result (type 5, 83 leaves) :

$$\frac{1}{f\, \left(\text{Cos}[e+f\, x]^2\right)^{3/4}} 2\, b\, \left(\left(\text{Cos}[e+f\, x]^2\right)^{3/4}-\text{Cos}[e+f\, x]^2\, \text{Hypergeometric2F1}\left[\frac{1}{4},\, \frac{1}{2},\, \frac{3}{2},\, \text{Sin}[e+f\, x]^2\right]\right)\, \sqrt{a\, \text{Sin}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}$$

Problem 124: Result unnecessarily involves higher level functions.

$$\int \frac{(b\, \text{Tan}[e+f\, x])^{3/2}}{(a\, \text{Sin}[e+f\, x])^{3/2}}\, dx$$

Optimal (type 4, 90 leaves, 3 steps) :

$$-\frac{2\, b^2\, \text{EllipticE}\left[\frac{1}{2}\, (e+f\, x),\, 2\right]\, \sqrt{a\, \text{Sin}[e+f\, x]}}{a^2\, f\, \sqrt{\text{Cos}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}+\frac{2\, b\, \sqrt{a\, \text{Sin}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}{a^2\, f}$$

Result (type 5, 92 leaves) :

$$\left(\left(2\, \text{Cos}[e+f\, x]\, \left(\text{Cos}[e+f\, x]^2\right)^{3/4}-\text{Cos}[e+f\, x]^3\, \text{Hypergeometric2F1}\left[\frac{1}{4},\, \frac{1}{2},\, \frac{3}{2},\, \text{Sin}[e+f\, x]^2\right]\right)\, (b\, \text{Tan}[e+f\, x])^{3/2}\right)\Big/ \left(a\, f\, \left(\text{Cos}[e+f\, x]^2\right)^{3/4}\, \sqrt{a\, \text{Sin}[e+f\, x]}\right)$$

Problem 125: Result unnecessarily involves higher level functions.

$$\int \frac{(b\, \text{Tan}[e+f\, x])^{3/2}}{(a\, \text{Sin}[e+f\, x])^{5/2}}\, dx$$

Optimal (type 3, 145 leaves, 8 steps) :

$$\frac{b^2\, \text{ArcTan}\left[\sqrt{\text{Cos}[e+f\, x]}\right]\, \sqrt{a\, \text{Sin}[e+f\, x]}}{a^3\, f\, \sqrt{\text{Cos}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}-\frac{b^2\, \text{ArcTanh}\left[\sqrt{\text{Cos}[e+f\, x]}\right]\, \sqrt{a\, \text{Sin}[e+f\, x]}}{a^3\, f\, \sqrt{\text{Cos}[e+f\, x]}\, \sqrt{b\, \text{Tan}[e+f\, x]}}+\frac{2\, b\, \sqrt{b\, \text{Tan}[e+f\, x]}}{a^2\, f\, \sqrt{a\, \text{Sin}[e+f\, x]}}$$

Result (type 5, 68 leaves) :

$$-\frac{2\, b\, \left(-1+\left(-\text{Cot}[e+f\, x]^2\right)^{1/4}\, \text{Hypergeometric2F1}\left[\frac{1}{4},\, \frac{1}{4},\, \frac{5}{4},\, \text{Csc}[e+f\, x]^2\right]\right)\, \sqrt{b\, \text{Tan}[e+f\, x]}}{a^2\, f\, \sqrt{a\, \text{Sin}[e+f\, x]}}$$

Problem 126: Result unnecessarily involves higher level functions.

$$\int \frac{(a\, \text{Sin}[e+f\, x])^{9/2}}{\sqrt{b\, \text{Tan}[e+f\, x]}}\, dx$$

Optimal (type 4, 123 leaves, 4 steps) :

$$-\frac{4 a^2 b (a \operatorname{Sin}[e+f x])^{5/2}}{15 f (b \operatorname{Tan}[e+f x])^{3/2}}-\frac{2 b (a \operatorname{Sin}[e+f x])^{9/2}}{9 f (b \operatorname{Tan}[e+f x])^{3/2}}+\frac{8 a^4 \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{a \operatorname{Sin}[e+f x]}}{15 f \sqrt{\operatorname{Cos}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}}$$

Result (type 5, 100 leaves) :

$$\left(a^4 \left(\left(\operatorname{Cos}[e+f x]^2\right)^{3/4} (-17+5 \operatorname{Cos}[2 (e+f x)])+12 \operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{1}{2}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right]\right) \sqrt{a \operatorname{Sin}[e+f x]} \operatorname{Sin}[2 (e+f x)]\right) \Big/ \left(90 f \left(\operatorname{Cos}[e+f x]^2\right)^{3/4} \sqrt{b \operatorname{Tan}[e+f x]}\right)$$

Problem 128: Result unnecessarily involves higher level functions.

$$\int \frac{(a \operatorname{Sin}[e+f x])^{5/2}}{\sqrt{b \operatorname{Tan}[e+f x]}} \, dx$$

Optimal (type 4, 88 leaves, 3 steps) :

$$-\frac{2 b (a \operatorname{Sin}[e+f x])^{5/2}}{5 f (b \operatorname{Tan}[e+f x])^{3/2}}+\frac{4 a^2 \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{a \operatorname{Sin}[e+f x]}}{5 f \sqrt{\operatorname{Cos}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}}$$

Result (type 5, 87 leaves) :

$$-\frac{a^2 \left(\left(\operatorname{Cos}[e+f x]^2\right)^{3/4}-\operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{1}{2}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right]\right) \sqrt{a \operatorname{Sin}[e+f x]} \operatorname{Sin}[2 (e+f x)]}{5 f \left(\operatorname{Cos}[e+f x]^2\right)^{3/4} \sqrt{b \operatorname{Tan}[e+f x]}}$$

Problem 130: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{a \operatorname{Sin}[e+f x]}}{\sqrt{b \operatorname{Tan}[e+f x]}} \, dx$$

Optimal (type 4, 50 leaves, 2 steps) :

$$\frac{2 \operatorname{EllipticE}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{a \operatorname{Sin}[e+f x]}}{f \sqrt{\operatorname{Cos}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}}$$

Result (type 5, 69 leaves) :

$$\frac{\operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{1}{2}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right] \sqrt{a \operatorname{Sin}[e+f x]} \operatorname{Sin}[2 (e+f x)]}{2 f \left(\operatorname{Cos}[e+f x]^2\right)^{3/4} \sqrt{b \operatorname{Tan}[e+f x]}}$$

Problem 131: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{a \operatorname{Sin}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}} \, dx$$

Optimal (type 3, 106 leaves, 7 steps) :

$$\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{a \,\text{Sin}[e+f x]}}{a f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}-\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{a \,\text{Sin}[e+f x]}}{a f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}$$

Result (type 5, 64 leaves) :

$$-\frac{2 \left(-\text{Cot}[e+f x]^2\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Csc}[e+f x]^2\right] \sqrt{b \,\text{Tan}[e+f x]}}{b f \sqrt{a \,\text{Sin}[e+f x]}}$$

- **Problem 132: Result unnecessarily involves higher level functions.**

$$\int \frac{1}{(a \,\text{Sin}[e+f x])^{3/2} \sqrt{b \,\text{Tan}[e+f x]}} \, dx$$

Optimal (type 4, 87 leaves, 3 steps) :

$$-\frac{b \sqrt{a \,\text{Sin}[e+f x]}}{a^2 f (b \,\text{Tan}[e+f x])^{3/2}}-\frac{\text{EllipticE}\left[\frac{1}{2} (e+f x),2\right] \sqrt{a \,\text{Sin}[e+f x]}}{a^2 f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}$$

Result (type 5, 89 leaves) :

$$-\frac{b \sqrt{a \,\text{Sin}[e+f x]} \left(2 \left(\text{Cos}[e+f x]^2\right)^{3/4}+\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{2},\frac{3}{2},\text{Sin}[e+f x]^2\right] \text{Sin}[e+f x]^2\right)}{2 a^2 f \left(\text{Cos}[e+f x]^2\right)^{3/4} (b \,\text{Tan}[e+f x])^{3/2}}$$

- **Problem 133: Result unnecessarily involves higher level functions.**

$$\int \frac{1}{(a \,\text{Sin}[e+f x])^{5/2} \sqrt{b \,\text{Tan}[e+f x]}} \, dx$$

Optimal (type 3, 146 leaves, 8 steps) :

$$-\frac{b}{2 a^2 f \sqrt{a \,\text{Sin}[e+f x]} (b \,\text{Tan}[e+f x])^{3/2}}+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{a \,\text{Sin}[e+f x]}}{4 a^3 f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}-\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[e+f x]}\right] \sqrt{a \,\text{Sin}[e+f x]}}{4 a^3 f \sqrt{\text{Cos}[e+f x]} \sqrt{b \,\text{Tan}[e+f x]}}$$

Result (type 5, 82 leaves) :

$$-\frac{1}{2 a^3 f \sqrt{b \,\text{Tan}[e+f x]}}\left(\text{Cot}[e+f x]^2+\left(-\text{Cot}[e+f x]^2\right)^{1/4} \text{Hypergeometric2F1}\left[\frac{1}{4},\frac{1}{4},\frac{5}{4},\text{Csc}[e+f x]^2\right]\right) \text{Sec}[e+f x] \sqrt{a \,\text{Sin}[e+f x]}$$

- **Problem 137: Result unnecessarily involves higher level functions.**

$$\int \frac{\sqrt{a \,\text{Sin}[e+f x]}}{(b \,\text{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 141 leaves, 8 steps) :

$$\frac{2\sqrt{a\,\text{Sin}[e+f\,x]}}{b\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{a\,\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{b^2\,f\,\sqrt{a\,\text{Sin}[e+f\,x]}}-\frac{a\,\text{ArcTanh}\left[\sqrt{\text{Cos}[e+f\,x]}\right]\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{b^2\,f\,\sqrt{a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 87 leaves) :

$$\frac{1}{3\,b\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}2\left(3\,\text{Cos}[e+f\,x]^2-\left(-\text{Cot}[e+f\,x]^2\right)^{3/4}\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Csc}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2\,\sqrt{a\,\text{Sin}[e+f\,x]}$$

- **Problem 138: Result unnecessarily involves higher level functions.**

$$\int\frac{1}{(a\,\text{Sin}[e+f\,x])^{3/2}\,(b\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 151 leaves, 8 steps) :

$$-\frac{1}{2\,b\,f\,(a\,\text{Sin}[e+f\,x])^{3/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{\text{ArcTan}\left[\sqrt{\text{Cos}[e+f\,x]}\right]\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{4\,a\,b^2\,f\,\sqrt{a\,\text{Sin}[e+f\,x]}}+\frac{\text{ArcTanh}\left[\sqrt{\text{Cos}[e+f\,x]}\right]\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{4\,a\,b^2\,f\,\sqrt{a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 70 leaves) :

$$\frac{-3-\frac{\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Csc}[e+f\,x]^2\right]}{\left(-\text{Cot}[e+f\,x]^2\right)^{1/4}}}{6\,b\,f\,(a\,\text{Sin}[e+f\,x])^{3/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}}$$

- **Problem 139: Result unnecessarily involves higher level functions.**

$$\int\frac{(a\,\text{Sin}[e+f\,x])^{11/2}}{(b\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 167 leaves, 5 steps) :

$$-\frac{4\,a^4\,(a\,\text{Sin}[e+f\,x])^{3/2}}{77\,b\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{2\,a^2\,(a\,\text{Sin}[e+f\,x])^{7/2}}{77\,b\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{2\,(a\,\text{Sin}[e+f\,x])^{11/2}}{11\,b\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{8\,a^6\,\sqrt{\text{Cos}[e+f\,x]}\,\text{EllipticF}\left[\frac{1}{2}(e+f\,x),2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{77\,b^2\,f\,\sqrt{a\,\text{Sin}[e+f\,x]}}$$

Result (type 5, 106 leaves) :

$$\left(a^4\left(2\left(\text{Cos}[e+f\,x]^2\right)^{1/4}(1-24\,\text{Cos}[2\,(e+f\,x)]+7\,\text{Cos}[4\,(e+f\,x)])+32\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{3}{4},\frac{3}{2},\text{Sin}[e+f\,x]^2\right]\right)(a\,\text{Sin}[e+f\,x])^{3/2}\right)\Big/\left(616\,b\,f\left(\text{Cos}[e+f\,x]^2\right)^{1/4}\sqrt{b\,\text{Tan}[e+f\,x]}\right)$$

- **Problem 140: Result unnecessarily involves higher level functions.**

$$\int\frac{(a\,\text{Sin}[e+f\,x])^{7/2}}{(b\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 130 leaves, 4 steps) :

$$-\frac{2 a^2 (a \operatorname{Sin}[e+f x])^{3/2}}{21 b f \sqrt{b \operatorname{Tan}[e+f x]}}+\frac{2 (a \operatorname{Sin}[e+f x])^{7/2}}{7 b f \sqrt{b \operatorname{Tan}[e+f x]}}+\frac{4 a^4 \sqrt{\operatorname{Cos}[e+f x]}\ \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{21 b^2 f \sqrt{a \operatorname{Sin}[e+f x]}}$$

Result (type 5, 95 leaves) :

$$-\left(a^2 \left(\left(\operatorname{Cos}[e+f x]^2\right)^{1/4} (-1+3 \operatorname{Cos}[2 (e+f x)])-2 \operatorname{Hypergeometric2F1}\left[\frac{1}{2}, \frac{3}{4}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right]\right) (a \operatorname{Sin}[e+f x])^{3/2}\right) \Big/ \left(21 b f \left(\operatorname{Cos}[e+f x]^2\right)^{1/4} \sqrt{b \operatorname{Tan}[e+f x]}\right)$$

- **Problem 141: Result unnecessarily involves higher level functions.**

$$\int \frac{(a \operatorname{Sin}[e+f x])^{3/2}}{(b \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 4, 93 leaves, 3 steps) :

$$\frac{2 (a \operatorname{Sin}[e+f x])^{3/2}}{3 b f \sqrt{b \operatorname{Tan}[e+f x]}}+\frac{2 a^2 \sqrt{\operatorname{Cos}[e+f x]}\ \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{3 b^2 f \sqrt{a \operatorname{Sin}[e+f x]}}$$

Result (type 5, 79 leaves) :

$$\frac{\left(2 \left(\operatorname{Cos}[e+f x]^2\right)^{1/4}+\operatorname{Hypergeometric2F1}\left[\frac{1}{2}, \frac{3}{4}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right]\right) (a \operatorname{Sin}[e+f x])^{3/2}}{3 b f \left(\operatorname{Cos}[e+f x]^2\right)^{1/4} \sqrt{b \operatorname{Tan}[e+f x]}}$$

- **Problem 142: Result unnecessarily involves higher level functions.**

$$\int \frac{1}{\sqrt{a \operatorname{Sin}[e+f x]}\ (b \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 4, 86 leaves, 3 steps) :

$$-\frac{1}{b f \sqrt{a \operatorname{Sin}[e+f x]}\ \sqrt{b \operatorname{Tan}[e+f x]}}-\frac{\sqrt{\operatorname{Cos}[e+f x]}\ \operatorname{EllipticF}\left[\frac{1}{2} (e+f x), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{b^2 f \sqrt{a \operatorname{Sin}[e+f x]}}$$

Result (type 5, 89 leaves) :

$$\frac{-2 \left(\operatorname{Cos}[e+f x]^2\right)^{1/4}-\operatorname{Hypergeometric2F1}\left[\frac{1}{2}, \frac{3}{4}, \frac{3}{2}, \operatorname{Sin}[e+f x]^2\right] \operatorname{Sin}[e+f x]^2}{2 b f \left(\operatorname{Cos}[e+f x]^2\right)^{1/4} \sqrt{a \operatorname{Sin}[e+f x]}\ \sqrt{b \operatorname{Tan}[e+f x]}}$$

- **Problem 143: Result unnecessarily involves higher level functions.**

$$\int \frac{1}{(a \operatorname{Sin}[e+f x])^{5/2} (b \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 4, 130 leaves, 4 steps) :

$$-\frac{1}{3\,b\,f\,(a\,\mathrm{Sin}[e+f\,x])^{5/2}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}+\frac{1}{6\,a^2\,b\,f\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}-\frac{\sqrt{\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticF}\left[\frac{1}{2}\,(e+f\,x),\,2\right]\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{6\,a^2\,b^2\,f\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 5, 104 leaves) :

$$\frac{2\,\left(\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\left(1-2\,\mathrm{Csc}[e+f\,x]^2\right)-\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{3}{2},\,\mathrm{Sin}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]^2}{12\,a^2\,b\,f\,\left(\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}$$

Problem 144: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a\,\mathrm{Sin}[e+f\,x])^{9/2}\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 167 leaves, 5 steps) :

$$-\frac{1}{5\,b\,f\,(a\,\mathrm{Sin}[e+f\,x])^{9/2}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}+\frac{1}{30\,a^2\,b\,f\,(a\,\mathrm{Sin}[e+f\,x])^{5/2}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}+$$
$$\frac{1}{12\,a^4\,b\,f\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}-\frac{\sqrt{\mathrm{Cos}[e+f\,x]}\,\mathrm{EllipticF}\left[\frac{1}{2}\,(e+f\,x),\,2\right]\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{12\,a^4\,b^2\,f\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}}$$

Result (type 5, 114 leaves) :

$$\left(2\,\left(\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\left(5+2\,\mathrm{Csc}[e+f\,x]^2-12\,\mathrm{Csc}[e+f\,x]^4\right)-5\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{3}{4},\,\frac{3}{2},\,\mathrm{Sin}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]^2\right)\Big/$$
$$\left(120\,a^4\,b\,f\,\left(\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\sqrt{a\,\mathrm{Sin}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}\right)$$

Problem 173: Result more than twice size of optimal antiderivative.

$$\int\frac{(a\,\mathrm{Sin}[e+f\,x])^m}{(b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 5, 79 leaves, 2 steps) :

$$-\frac{2\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{4}\,(-1+2\,m),\,\frac{1}{4}\,(3+2\,m),\,\mathrm{Sin}[e+f\,x]^2\right]\,(a\,\mathrm{Sin}[e+f\,x])^m}{b\,f\,(1-2\,m)\,\left(\mathrm{Cos}[e+f\,x]^2\right)^{1/4}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 5, 224 leaves) :

$$\left(\mathrm{Sec}[e+f x]^4 \left(\mathrm{Sec}[e+f x]^2\right)^{\frac{1}{2}(-4+m)} (a\,\mathrm{Sin}[e+f x])^m \left(\mathrm{Hypergeometric2F1}\left[\frac{m}{2}, \frac{1}{4}(-1+2m), \frac{1}{4}(3+2m), -\mathrm{Tan}[e+f x]^2\right] + \left(\mathrm{Cos}[2(e+f x)]\,\mathrm{Sec}[e+f x]^2 \left(-(3+2m)\,\mathrm{Hypergeometric2F1}\left[\frac{m}{2}, \frac{1}{4}(-1+2m), \frac{1}{4}(3+2m), -\mathrm{Tan}[e+f x]^2\right] + 2(-1+2m)\,\mathrm{Hypergeometric2F1}\left[\frac{2+m}{2}, \frac{1}{4}(3+2m), \frac{1}{4}(7+2m), -\mathrm{Tan}[e+f x]^2\right] \mathrm{Tan}[e+f x]^2\right)\right) \Big/ \left((3+2m)\left(-1+\mathrm{Tan}[e+f x]^2\right)\right)\right)\right) \Big/ \left(b f (-1+2m) \sqrt{b\,\mathrm{Tan}[e+f x]}\right)$$

- **Problem 174: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (a\,\mathrm{Sin}[e+f x])^m (b\,\mathrm{Tan}[e+f x])^n\, dx$$

Optimal (type 5, 83 leaves, 2 steps):

$$\frac{1}{b f (1+m+n)} \left(\mathrm{Cos}[e+f x]^2\right)^{\frac{1+n}{2}} \mathrm{Hypergeometric2F1}\left[\frac{1+n}{2}, \frac{1}{2}(1+m+n), \frac{1}{2}(3+m+n), \mathrm{Sin}[e+f x]^2\right] (a\,\mathrm{Sin}[e+f x])^m (b\,\mathrm{Tan}[e+f x])^{1+n}$$

Result (type 6, 2107 leaves):

$$\left((3+m+n)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n), n, 1+m, \frac{1}{2}(3+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Sin}[e+f x]^{1+m} (a\,\mathrm{Sin}[e+f x])^m \mathrm{Tan}[e+f x]^n (b\,\mathrm{Tan}[e+f x])^n\right) \Big/$$

$$\left(f (1+m+n) \left((3+m+n)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n), n, 1+m, \frac{1}{2}(3+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2\left((1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n), n, 2+m, \frac{1}{2}(5+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n), 1+n, 1+m, \frac{1}{2}(5+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.$$

$$\left(\left(n (3+m+n)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n), n, 1+m, \frac{1}{2}(3+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Sec}[e+f x]^2\,\mathrm{Sin}[e+f x]^{1+m}\,\mathrm{Tan}[e+f x]^{-1+n}\right) \Big/ \left((1+m+n) \left((3+m+n)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n), n, 1+m, \frac{1}{2}(3+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2\left((1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n), n, 2+m, \frac{1}{2}(5+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n), 1+n, 1+m, \frac{1}{2}(5+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\left((1+m)(3+m+n)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n), n, 1+m, \frac{1}{2}(3+m+n), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Cos}[e+f x]\,\mathrm{Sin}[e+f x]^m\right.$$

$$\left.\left.\text{Tan}[e+f x]^n\right)\right/\left((1+m+n)\left((3+m+n)\,\text{AppellF1}\left[\frac{1}{2}(1+m+n),n,1+m,\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$

$$2\left((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),n,2+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$\left.\left.\left.n\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),1+n,1+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left((3+m+n)\,\text{Sin}[e+f x]^{1+m}\left(-\frac{1}{3+m+n}(1+m)(1+m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(1+m+n),n,2+m,1+\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+m+n}n(1+m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+n),1+n,$$

$$\left.\left.1+m,1+\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\text{Tan}[e+f x]^n\Big)\Big/$$

$$\left((1+m+n)\left((3+m+n)\,\text{AppellF1}\left[\frac{1}{2}(1+m+n),n,1+m,\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$

$$2\left((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),n,2+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$\left.\left.\left.n\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),1+n,1+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\left((3+m+n)\,\text{AppellF1}\left[\frac{1}{2}(1+m+n),n,1+m,\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sin}[e+f x]^{1+m}\right.$$

$$\left(-2\left((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),n,2+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$

$$\left.n\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),1+n,1+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$(3+m+n)\left(-\frac{1}{3+m+n}(1+m)(1+m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(1+m+n),n,2+m,1+\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+m+n}n(1+m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+n),1+$$

$$\left.n,1+m,1+\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)-$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left((1+m)\left(-\frac{1}{5+m+n}(2+m)(3+m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3+m+n),n,3+m,1+\frac{1}{2}(5+m+n),\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+m+n}n(3+m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+n),$$

$$\left.1+n,2+m,1+\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)-$$

$$n\left(-\frac{1}{5+m+n}(1+m)(3+m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3+m+n),1+n,2+m,1+\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+m+n}(1+n)(3+m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3+m+n),2+n,1+m,\right.$$
$$\left.\left.\left.1+\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\text{Tan}[e+f x]^n\right)\Big/$$
$$\left((1+m+n)\left((3+m+n)\,\text{AppellF1}\left[\frac{1}{2}(1+m+n),n,1+m,\frac{1}{2}(3+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$
$$2\left((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+n),n,2+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+m+n),1+n,1+m,\frac{1}{2}(5+m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right)$$

- **Problem 175: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f x]^4\,(b\,\text{Tan}[e+f x])^n\,dx$$

Optimal (type 5, 50 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}\left[3,\frac{5+n}{2},\frac{7+n}{2},-\text{Tan}[e+f x]^2\right](b\,\text{Tan}[e+f x])^{5+n}}{b^5 f(5+n)}$$

Result (type 6, 7770 leaves):

$$\left(2^{5+n}(3+n)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^n\right.$$
$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Big/\right.$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$
$$\left(2\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/ \left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left.\left. n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)$$

$$\text{Tan}[e+f x]^{-n}\,(b\,\text{Tan}[e+f x])^n\left(-\frac{1}{16}\,i\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n - \frac{1}{4}\text{Sin}[2(e+f x)]\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n +\right.$$

$$\frac{3}{8}\,i\,\text{Sin}[2(e+f x)]^2\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n + \frac{1}{4}\text{Sin}[2(e+f x)]^3\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n -$$

$$\frac{1}{16}\,i\,\text{Sin}[2(e+f x)]^4\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n +$$

$$\text{Cos}[4(e+f x)]\left(\frac{1}{16}\text{Tan}[e+f x]^n - \frac{1}{4}\,i\,\text{Sin}[2(e+f x)]\,\text{Tan}[e+f x]^n -\right.$$

$$\left.\frac{3}{8}\text{Sin}[2(e+f x)]^2\,\text{Tan}[e+f x]^n + \frac{1}{4}\,i\,\text{Sin}[2(e+f x)]^3\,\text{Tan}[e+f x]^n + \frac{1}{16}\text{Sin}[2(e+f x)]^4\,\text{Tan}[e+f x]^n\right) +$$

$$\text{Cos}[2(e+f x)]^4\left(\frac{1}{16}\text{Cos}[4(e+f x)]\,\text{Tan}[e+f x]^n - \frac{1}{16}\,i\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n\right) +$$

$$\text{Cos}[2(e+f x)]^3\left(\frac{1}{4}\,i\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n + \frac{1}{4}\text{Sin}[2(e+f x)]\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n +\right.$$

$$\left.\text{Cos}[4(e+f x)]\left(-\frac{1}{4}\text{Tan}[e+f x]^n + \frac{1}{4}\,i\,\text{Sin}[2(e+f x)]\,\text{Tan}[e+f x]^n\right)\right) + \text{Cos}[2(e+f x)]^2$$

$$\left(-\frac{3}{8}\,i\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n - \frac{3}{4}\text{Sin}[2(e+f x)]\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n + \frac{3}{8}\,i\,\text{Sin}[2(e+f x)]^2\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n +\right.$$

$$\left.\text{Cos}[4(e+f x)]\left(\frac{3}{8}\text{Tan}[e+f x]^n - \frac{3}{4}\,i\,\text{Sin}[2(e+f x)]\,\text{Tan}[e+f x]^n - \frac{3}{8}\text{Sin}[2(e+f x)]^2\,\text{Tan}[e+f x]^n\right)\right) +$$

$$\text{Cos}[2(e+f x)]\left(\frac{1}{4}\,i\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n + \frac{3}{4}\text{Sin}[2(e+f x)]\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n -\right.$$

$$\frac{3}{4}\,i\,\text{Sin}[2(e+f x)]^2\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n - \frac{1}{4}\text{Sin}[2(e+f x)]^3\,\text{Sin}[4(e+f x)]\,\text{Tan}[e+f x]^n + \text{Cos}[4(e+f x)]$$

$$\left.\left.\left(-\frac{1}{4}\text{Tan}[e+f x]^n + \frac{3}{4}\,i\,\text{Sin}[2(e+f x)]\,\text{Tan}[e+f x]^n + \frac{3}{4}\text{Sin}[2(e+f x)]^2\,\text{Tan}[e+f x]^n - \frac{1}{4}\,i\,\text{Sin}[2(e+f x)]^3\,\text{Tan}[e+f x]^n\right)\right)\right)\right) \Big/$$

$$\left(f\,(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(-\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^6}\,5\times 2^{5+n}\,(3+n)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.\right.$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^n \left(\left(\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/ \right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left. -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 3, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) -$$

$$\left(2\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2}, n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left. -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/ \left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2},\right.\right.$$

$$\left. \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left.\left.\left. n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5} 2^{4+n}(3+n)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^n$$

$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/ \right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left. -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 3, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) -$$

$$\left(2\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2}, n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left. -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/ \left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + n\right.$$

$$\left.\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big) +$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5} 2^{5+n}\, n\,(3+n)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{-1+n}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2} - \frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)}\right)$$

$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 3, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big) -$$

$$\left(2\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2}, n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big) +$$

$$\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + n\right.$$

$$\left.\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big) +$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5} 2^{5+n}\,(3+n)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{n}$$

$$\left(\left(2\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 3, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]) \text{Tan}[\tfrac{1}{2}(e+f x)]^2) +$$

$$((-1/(3+n) 3 (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, n, 4, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(e+f x)] + 1/(3+n) n (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, 1+n, 3, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)]) (1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2)^2) /$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 3, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + 2 (-3\,\text{AppellF1}[\tfrac{3+n}{2}, n, 4, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 3, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]) \text{Tan}[\tfrac{1}{2}(e+f x)]^2) -$$

$$(2\,\text{AppellF1}[\tfrac{1+n}{2}, n, 4, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)]) /$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 4, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + 2 (-4\,\text{AppellF1}[\tfrac{3+n}{2}, n, 5, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 4, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]) \text{Tan}[\tfrac{1}{2}(e+f x)]^2) -$$

$$(2 (-1/(3+n) 4 (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, n, 5, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(e+f x)] + 1/(3+n) n (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, 1+n, 4, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)]) (1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2)) /$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 4, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + 2 (-4\,\text{AppellF1}[\tfrac{3+n}{2}, n, 5, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 4, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]) \text{Tan}[\tfrac{1}{2}(e+f x)]^2) +$$

$$(-1/(3+n) 5 (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, n, 6, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)] +$$

$$1/(3+n) n (1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, 1+n, 5, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(e+f x)]) / ((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 5, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] +$$

$$2 (-5\,\text{AppellF1}[\tfrac{3+n}{2}, n, 6, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 5, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)-\Big(\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Big(2\Big(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\Big[$$

$$\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n)\Big(-\frac{1}{3+n}3(1+n)$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n}$$

$$n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big(-3\Big(-\frac{1}{5+n}4(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,5,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n}n(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+n\Big(-\frac{1}{5+n}3(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2+$$

$$\Big(2\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\Big(2\Big(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\Big[\frac{3+n}{2},1+n,4,\frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n)\Big(-\frac{1}{3+n}4(1+n)$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},n,5,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n}$$

$$n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big(-4\Big(-\frac{1}{5+n}5(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,6,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+n}n\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+n\left(-\frac{1}{5+n}4\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},\right.$$

$$\left.\left.2+n,4,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left(-4\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2-$$

$$\left(\mathrm{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(2\left(-5\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,6,\frac{5+n}{2},\right.\right.\right.\right.$$

$$\left.\left.\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+(3+n)\left(-\frac{1}{3+n}5\,(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},n,6,1+\frac{3+n}{2},\right.\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+n}n\,(1+n)$$

$$\left.\mathrm{AppellF1}\left[1+\frac{1+n}{2},1+n,5,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-5\left(-\frac{1}{5+n}6\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},n,7,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.\right.$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+n}n\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},1+n,6,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+n\left(-\frac{1}{5+n}5\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},1+n,6,1+\frac{5+n}{2},\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\mathrm{AppellF1}\left[1+\frac{3+n}{2},\right.$$

$$\left.\left.2+n,5,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left(-5\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,6,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)\Big)\Big)$$

- **Problem 176: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Sin}[e+f x]^2\,(b\,\mathrm{Tan}[e+f x])^n\,dx$$

Optimal (type 5, 50 leaves, 2 steps):

$$\frac{\mathrm{Hypergeometric2F1}\left[2,\frac{3+n}{2},\frac{5+n}{2},-\mathrm{Tan}[e+f x]^2\right]\,(b\,\mathrm{Tan}[e+f x])^{3+n}}{b^3 f\,(3+n)}$$

Result (type 6, 4602 leaves):

$$\Big(8\,(3+n)\,\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^5\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]$$
$$\Big(\Big(\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Big(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)-$$
$$\mathrm{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Big(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)$$
$$(b\,\mathrm{Tan}[e+f x])^n\Big(-\frac{1}{4}\mathrm{Cos}[2(e+f x)]^3\,\mathrm{Tan}[e+f x]^n+\frac{1}{4}\,i\,\mathrm{Sin}[2(e+f x)]\,\mathrm{Tan}[e+f x]^n+\frac{1}{2}\mathrm{Sin}[2(e+f x)]^2\,\mathrm{Tan}[e+f x]^n-$$
$$\frac{1}{4}\,i\,\mathrm{Sin}[2(e+f x)]^3\,\mathrm{Tan}[e+f x]^n+\mathrm{Cos}[2(e+f x)]^2\Big(\frac{1}{2}\mathrm{Tan}[e+f x]^n-\frac{1}{4}\,i\,\mathrm{Sin}[2(e+f x)]\,\mathrm{Tan}[e+f x]^n\Big)+$$
$$\mathrm{Cos}[2(e+f x)]\Big(-\frac{1}{4}\mathrm{Tan}[e+f x]^n-\frac{1}{4}\mathrm{Sin}[2(e+f x)]^2\,\mathrm{Tan}[e+f x]^n\Big)\Big)\Big)\Big/$$
$$\Big(f\,(1+n)\Big(\frac{1}{1+n}8\,n\,(3+n)\,\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^5\mathrm{Sec}[e+f x]^2\,\mathrm{Sin}\left[\frac{1}{2}(e+f x)\right]$$
$$\Big(\Big(\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n$$

$$\left.\left.\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\text{Tan}[e+f x]^{-1+n}+$$

$$\frac{1}{1+n}4(3+n)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^6\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n$$

$$\left.\left.\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\text{Tan}[e+f x]^n-\frac{1}{1+n}$$

$$20(3+n)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^4\text{Sin}\left[\frac{1}{2}(e+f x)\right]^2\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,\right.$$

$$\left.\left.\left.3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\text{Tan}[e+f x]^n+\frac{1}{1+n}8(3+n)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^5$$

$$\text{Sin}\left[\frac{1}{2}(e+f x)\right]\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$
$$\left(\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(-1/(3+n)2(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+1/(3+n)n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,2,\right.$$
$$\left.\left.\left.1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$
$$\left(-1/(3+n)3(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$
$$1/(3+n)n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\bigg)-\left(\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},\right.\right.\right.$$
$$\left.\left.1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+(3+n)\left(-\frac{1}{3+n}2(1+n)\right.$$
$$\text{AppellF1}\left[1+\frac{1+n}{2},n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+n}$$
$$\left.n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,2,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$
$$2\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-2\left(-\frac{1}{5+n}3(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+n}n(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+n\Big(-\frac{1}{5+n}2(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},1+n,3,1+\frac{5+n}{2},$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$
$$2+n,2,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2+$$
$$\Big(\text{AppellF1}\Big[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big(2\Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\Big[$$
$$\frac{1}{2}(e+f x)\Big]+(3+n)\Big(-\frac{1}{3+n}3(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n}n(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},1+n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big(-3\Big(-\frac{1}{5+n}4(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$
$$n,5,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n}n(3+n)$$
$$\text{AppellF1}\Big[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$
$$n\Big(-\frac{1}{5+n}3(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},2+n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\Big)\Big)\Big/\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+$$
$$n\,\text{AppellF1}\Big[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)\,\text{Tan}[e+f x]^n\Big)\Big)$$

- **Problem 180: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Sin}[e+f\,x]^3\,(b\,\mathrm{Tan}[e+f\,x])^n\,dx$$

Optimal (type 5, 78 leaves, 2 steps):

$$\frac{\left(\mathrm{Cos}[e+f\,x]^2\right)^{\frac{1+n}{2}}\,\mathrm{Hypergeometric2F1}\left[\frac{1+n}{2},\,\frac{4+n}{2},\,\frac{6+n}{2},\,\mathrm{Sin}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]^3\,(b\,\mathrm{Tan}[e+f\,x])^{1+n}}{b\,f\,(4+n)}$$

Result (type 6, 4958 leaves):

$$\Bigg(16\,(4+n)\,\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^6\,\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$
$$\Bigg(\left(\mathrm{AppellF1}\left[\frac{2+n}{2},\,n,\,3,\,\frac{4+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Big/\Bigg((4+n)\,\mathrm{AppellF1}\left[\frac{2+n}{2},\,n,\,3,\,\frac{4+n}{2},\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-3\,\mathrm{AppellF1}\left[\frac{4+n}{2},\,n,\,4,\,\frac{6+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$
$$n\,\mathrm{AppellF1}\left[\frac{4+n}{2},\,1+n,\,3,\,\frac{6+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$
$$\mathrm{AppellF1}\left[\frac{2+n}{2},\,n,\,4,\,\frac{4+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\Bigg((4+n)\,\mathrm{AppellF1}\left[\frac{2+n}{2},\,n,\,4,\,\frac{4+n}{2},\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-4\,\mathrm{AppellF1}\left[\frac{4+n}{2},\,n,\,5,\,\frac{6+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$
$$n\,\mathrm{AppellF1}\left[\frac{4+n}{2},\,1+n,\,4,\,\frac{6+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)$$
$$(b\,\mathrm{Tan}[e+f\,x])^n\,\Bigg(-\frac{1}{8}\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+\frac{3}{8}\,i\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+$$
$$\frac{3}{8}\,\mathrm{Sin}[2\,(e+f\,x)]^2\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n-$$
$$\frac{1}{8}\,i\,\mathrm{Sin}[2\,(e+f\,x)]^3\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+\mathrm{Cos}[3\,(e+f\,x)]$$
$$\left(-\frac{1}{8}\,i\,\mathrm{Tan}[e+f\,x]^n-\frac{3}{8}\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+\frac{3}{8}\,i\,\mathrm{Sin}[2\,(e+f\,x)]^2\,\mathrm{Tan}[e+f\,x]^n+\frac{1}{8}\,\mathrm{Sin}[2\,(e+f\,x)]^3\,\mathrm{Tan}[e+f\,x]^n\right)+$$
$$\mathrm{Cos}[2\,(e+f\,x)]^3\,\left(\frac{1}{8}\,i\,\mathrm{Cos}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+\frac{1}{8}\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n\right)+$$
$$\mathrm{Cos}[2\,(e+f\,x)]^2\,\Bigg(-\frac{3}{8}\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+\frac{3}{8}\,i\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+$$
$$\mathrm{Cos}[3\,(e+f\,x)]\,\left(-\frac{3}{8}\,i\,\mathrm{Tan}[e+f\,x]^n-\frac{3}{8}\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n\right)\Bigg)+\mathrm{Cos}[2\,(e+f\,x)]$$
$$\Bigg(\frac{3}{8}\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n-\frac{3}{4}\,i\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n-\frac{3}{8}\,\mathrm{Sin}[2\,(e+f\,x)]^2\,\mathrm{Sin}[3\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^n+$$

$$\text{Cos}[3\,(e+f\,x)]\,\left(\frac{3}{8}\,\mathrm{i}\,\text{Tan}[e+f\,x]^n+\frac{3}{4}\,\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^n-\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Tan}[e+f\,x]^n\right)\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(f\,(2+n)\,\Bigg(\frac{1}{2+n}16\,n\,(4+n)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^6\,\text{Sec}[e+f\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Big/$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-3\,\text{AppellF1}\left[\frac{4+n}{2},n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-4\,\text{AppellF1}\left[\frac{4+n}{2},n,5,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n$$

$$\text{AppellF1}\left[\frac{4+n}{2},1+n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\text{Tan}[e+f\,x]^{-1+n}+\frac{1}{2+n}$$

$$16\,(4+n)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^7\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\,\Bigg(\Bigg(\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Big/$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-3\,\text{AppellF1}\left[\frac{4+n}{2},n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-4\,\text{AppellF1}\left[\frac{4+n}{2},n,5,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n$$

$$\text{AppellF1}\left[\frac{4+n}{2},1+n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\text{Tan}[e+f\,x]^n-\frac{1}{2+n}$$

$$48\,(4+n)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^5\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^3\,\Bigg(\Bigg(\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Big/$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-3\,\text{AppellF1}\left[\frac{4+n}{2},n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Big(-4\,\mathrm{AppellF1}\Big[\frac{4+n}{2},n,5,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{4+n}{2},1+n,$$

$$4,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)\,\mathrm{Tan}[e+fx]^n+\frac{1}{2+n}16\,(4+n)\,\mathrm{Cos}\left[\frac{1}{2}(e+fx)\right]^6$$

$$\mathrm{Sin}\left[\frac{1}{2}(e+fx)\right]^2\Bigg(\Big(\mathrm{AppellF1}\Big[\frac{2+n}{2},n,3,\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big/$$

$$\Big((4+n)\,\mathrm{AppellF1}\Big[\frac{2+n}{2},n,3,\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Big(-3\,\mathrm{AppellF1}\Big[\frac{4+n}{2},n,4,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)+$$

$$\Big(\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\Big(-1/(4+n)\,3\,(2+n)\,\mathrm{AppellF1}\Big[1+\frac{2+n}{2},n,4,1+\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+1/(4+n)\,n\,(2+n)\,\mathrm{AppellF1}\Big[1+\frac{2+n}{2},1+n,3,$$

$$1+\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big)\Big/$$

$$\Big((4+n)\,\mathrm{AppellF1}\Big[\frac{2+n}{2},n,3,\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2\Big(-3\,\mathrm{AppellF1}\Big[\frac{4+n}{2},n,4,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)-$$

$$\Big(-1/(4+n)\,4\,(2+n)\,\mathrm{AppellF1}\Big[1+\frac{2+n}{2},n,5,1+\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$1/(4+n)\,n\,(2+n)\,\mathrm{AppellF1}\Big[1+\frac{2+n}{2},1+n,4,1+\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big/\Big((4+n)\,\mathrm{AppellF1}\Big[\frac{2+n}{2},n,4,\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+$$

$$2\Big(-4\,\mathrm{AppellF1}\Big[\frac{4+n}{2},n,5,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{4+n}{2},1+n,4,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)-\Big(\mathrm{AppellF1}\Big[\frac{2+n}{2},n,3,\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\Big(2\Big(-3\,\mathrm{AppellF1}\Big[\frac{4+n}{2},n,4,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{4+n}{2},$$

$$1+n,3,\frac{6+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\Big)\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+(4+n)\Big(-\frac{1}{4+n}3\,(2+n)$$

$$\mathrm{AppellF1}\Big[1+\frac{2+n}{2},n,4,1+\frac{4+n}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{4+n}$$

$$n\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},1+n,3,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-3\Bigg(-\frac{1}{6+n}4\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},n,5,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}n\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+n,4,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+n\Bigg(-\frac{1}{6+n}3\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+n,4,1+\frac{6+n}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}(1+n)\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\right.$$

$$\left.2+n,3,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,3,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Bigg(-3\,\text{AppellF1}\left[\frac{4+n}{2},n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2+$$

$$\Bigg(\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg(2\Bigg(-4\,\text{AppellF1}\left[\frac{4+n}{2},n,5,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\Big[$$

$$\frac{1}{2}(e+f x)\Big]+(4+n)\Bigg(-\frac{1}{4+n}4\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},n,5,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{4+n}n\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},1+n,4,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-4\Bigg(-\frac{1}{6+n}5\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},\right.$$

$$\left.n,6,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}n\,(4+n)$$

$$\text{AppellF1}\left[1+\frac{4+n}{2},1+n,5,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$n\Bigg(-\frac{1}{6+n}4\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+n,5,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}(1+n)\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},2+n,4,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,4,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\left(-4\,\text{AppellF1}\left[\frac{4+n}{2},n,5,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,4,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)\text{Tan}[e+f x]^n\Big)\Big)$$

- **Problem 181: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f x]\,(b\,\text{Tan}[e+f x])^n\,dx$$

Optimal (type 5, 76 leaves, 2 steps):

$$\frac{\left(\text{Cos}[e+f x]^2\right)^{\frac{1+n}{2}}\text{Hypergeometric2F1}\left[\frac{1+n}{2},\frac{2+n}{2},\frac{4+n}{2},\text{Sin}[e+f x]^2\right]\text{Sin}[e+f x]\,(b\,\text{Tan}[e+f x])^{1+n}}{b\,f\,(2+n)}$$

Result (type 6, 1888 leaves):

$$\left((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sin}[e+f x]^3\,\text{Tan}[e+f x]^n\,(b\,\text{Tan}[e+f x])^n\right)\Big/$$
$$\left(f\,(2+n)\left((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$
$$\left(\left(2\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}[e+f x]\,\text{Sin}[e+f x]\,\text{Tan}[e+f x]^n\right)\Big/\right.$$
$$\left((2+n)\left((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\left.n\,\text{AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+\left((4+n)\,\text{Sin}[e+f x]^2\right.$$
$$\left(-1/(4+n)2\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},n,3,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.1/(4+n)\,n\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},1+n,2,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$
$$\left.\text{Tan}[e+f x]^n\right)\Big/\left((2+n)\left((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\text{n AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sin}[e+f x]^2$$

$$\Bigg(2\left(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\text{n AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(4+n)$$

$$\Bigg(-\frac{1}{4+n}2\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},n,3,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{4+n}n\,(2+n)\,\text{AppellF1}\left[1+\frac{2+n}{2},1+n,2,1+\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-2\Bigg(-\frac{1}{6+n}3\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},n,4,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}n\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+n,3,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+n\Bigg(-\frac{1}{6+n}2\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},1+n,3,1+\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{6+n}(1+n)\,(4+n)\,\text{AppellF1}\left[1+\frac{4+n}{2},2+n,2,1+\frac{6+n}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\text{Tan}[e+f x]^n\Bigg)\Bigg/\Bigg((2+n)$$

$$\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Bigg(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{n AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)+$$

$$\Bigg(n\,(4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}[e+f x]^{1+n}\Bigg)\Bigg/$$

$$\Bigg((2+n)\Bigg((4+n)\,\text{AppellF1}\left[\frac{2+n}{2},n,2,\frac{4+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg(-2\,\text{AppellF1}\left[\frac{4+n}{2},n,3,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\text{n AppellF1}\left[\frac{4+n}{2},1+n,2,\frac{6+n}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)\Bigg)$$

- **Problem 183: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Csc}[e+f x]^3 \,(b \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 5, 78 leaves, 2 steps):

$$-\frac{\operatorname{Cos}[e+f x] \operatorname{Hypergeometric2F1}\left[\frac{1-n}{2}, \frac{4-n}{2}, \frac{3-n}{2}, \operatorname{Cos}[e+f x]^2\right] \left(\operatorname{Sin}[e+f x]^2\right)^{-n/2} (b \operatorname{Tan}[e+f x])^n}{f (1-n)}$$

Result (type 5, 182 leaves):

$$\frac{1}{4 f n \left(-4+n^2\right)} \left(n (2+n) \operatorname{Cot}\left[\frac{1}{2} (e+f x)\right]^4 \operatorname{Hypergeometric2F1}\left[-1+\frac{n}{2}, n, \frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] + (-2+n) \left(n \operatorname{Hypergeometric2F1}\left[1+\frac{n}{2}, n, 2+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] + 2 (2+n) \operatorname{Cot}\left[\frac{1}{2} (e+f x)\right]^2 \operatorname{Hypergeometric2F1}\left[\frac{n}{2}, n, 1+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]\right)\right) \left(\operatorname{Cos}[e+f x] \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2\right)^n \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2 (b \operatorname{Tan}[e+f x])^n$$

Problem 184: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[e+f x]^5 \,(b \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 5, 78 leaves, 2 steps):

$$-\frac{\operatorname{Cos}[e+f x] \operatorname{Hypergeometric2F1}\left[\frac{1-n}{2}, \frac{6-n}{2}, \frac{3-n}{2}, \operatorname{Cos}[e+f x]^2\right] \left(\operatorname{Sin}[e+f x]^2\right)^{-n/2} (b \operatorname{Tan}[e+f x])^n}{f (1-n)}$$

Result (type 5, 254 leaves):

$$\frac{1}{16 f} \left(\operatorname{Cos}[e+f x] \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2\right)^n \left(\frac{\operatorname{Cot}\left[\frac{1}{2} (e+f x)\right]^4 \operatorname{Hypergeometric2F1}\left[-2+\frac{n}{2}, n, -1+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{-4+n} + \frac{4 \operatorname{Cot}\left[\frac{1}{2} (e+f x)\right]^2 \operatorname{Hypergeometric2F1}\left[-1+\frac{n}{2}, n, \frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{-2+n} + \frac{6 \operatorname{Hypergeometric2F1}\left[\frac{n}{2}, n, 1+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]}{n} + \frac{4 \operatorname{Hypergeometric2F1}\left[1+\frac{n}{2}, n, 2+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2}{2+n} + \frac{\operatorname{Hypergeometric2F1}\left[2+\frac{n}{2}, n, 3+\frac{n}{2}, \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^4}{4+n}\right) (b \operatorname{Tan}[e+f x])^n$$

- **Problem 222: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^m \,\text{Tan}[e+f x]^n \, dx$$

Optimal (type 5, 62 leaves, 3 steps):

$$\frac{\text{Cot}[e+f x]^m \,\text{Hypergeometric2F1}\left[1, \frac{1}{2} (1-m+n), \frac{1}{2} (3-m+n), -\text{Tan}[e+f x]^2\right] \text{Tan}[e+f x]^{1+n}}{f (1-m+n)}$$

Result (type 6, 2965 leaves):

$$-\left(\left(2\, e^{n \,\text{Log}[\text{Cot}[e+f x]]+n \,\text{Log}[\text{Tan}[e+f x]]} (-3+m-n) \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]\right.\right.$$
$$\left.\text{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \text{Cot}\left[\frac{1}{2} (e+f x)\right] \text{Cot}[e+f x]^{2 m-n} \,\text{Tan}[e+f x]^n\right) \Big/$$
$$\left(f (-1+m-n) \left(2 \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), -m+n, 2, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+\right.\right.$$
$$2 (m-n) \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), 1-m+n, 1, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+$$
$$\left.(-3+m-n) \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\right)$$
$$\left(-\left(\left(2 (-3+m-n)\, n \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]\right.\right.\right.$$
$$\left.\text{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \text{Cot}\left[\frac{1}{2} (e+f x)\right] \text{Cot}[e+f x]^m \,\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]^{-1+n}\right) \Big/$$
$$\left((-1+m-n) \left(2 \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), -m+n, 2, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+\right.\right.$$
$$2 (m-n) \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), 1-m+n, 1, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+$$
$$\left.\left.\left.(-3+m-n) \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\right)\right)\right)+$$
$$\left(2 (-3+m-n) \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cos}\left[\frac{1}{2} (e+f x)\right]^2\right.$$
$$\left.\text{Cot}[e+f x]^m \,\text{Tan}[e+f x]^n\right) \Big/ \left((-1+m-n) \left(2 \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), -m+n, 2, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+\right.\right.$$
$$2 (m-n) \,\text{AppellF1}\left[\frac{1}{2} (3-m+n), 1-m+n, 1, \frac{1}{2} (5-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+$$
$$\left.\left.(-3+m-n) \,\text{AppellF1}\left[\frac{1}{2} (1-m+n), -m+n, 1, \frac{1}{2} (3-m+n), \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2} (e+f x)\right]^2\right)\right)+$$

$$\left((-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right.$$

$$\left.\text{Cot}[e+fx]^m\,\text{Tan}[e+fx]^n\right)\Big/\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$

$$\left(2(-3+m-n)\,\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m\left(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(1-m+n),-m+n,2,1+\right.\right.\right.$$

$$\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3-m+n}(-m+n)(1-m+n)\,\text{AppellF1}\Big[$$

$$\left.1+\frac{1}{2}(1-m+n),1-m+n,1,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)$$

$$\left.\text{Tan}[e+fx]^n\right)\Big/\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$

$$\left(2(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\right.$$

$$\text{Cot}[e+fx]^m\left(-(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\right.$$

$$\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2+(-3+m-n)\,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\left(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(1-m+n),-m+n,2,1+\frac{1}{2}(3-m+n),\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3-m+n}(-m+n)(1-m+n)\,\text{AppellF1}\Big[$$

$$\left.1+\frac{1}{2}(1-m+n),1-m+n,1,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$

$$2\left(-\frac{1}{5-m+n}2(3-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+n),-m+n,3,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5-m+n}(-m+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1-m+n,$$

$$\left.2,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$

$$2\,(m-n)\left(-\frac{1}{5-m+n}(3-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+n),\,1-m+n,\,2,\,1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{5-m+n}(1-m+n)\,(3-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+n),\,2-m+n,\,1,\right.$$
$$\left.\left.1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\right)\text{Tan}[e+f\,x]^n\Big)\Big/$$
$$\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),\,-m+n,\,2,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.\right.$$
$$2\,(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),\,1-m+n,\,1,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)+$$
$$\left(2\,m\,(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\,\text{Cot}[e+f\,x]^m\,\text{Csc}[e+f\,x]^2\,\text{Tan}[e+f\,x]^{1+n}\right)\Big/$$
$$\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),\,-m+n,\,2,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.\right.$$
$$2\,(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),\,1-m+n,\,1,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big)\Big)\Big)$$

- **Problem 223: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^m\,(b\,\text{Tan}[e+f\,x])^n\,dx$$

Optimal (type 5, 67 leaves, 3 steps):

$$\frac{\text{Cot}[e+f\,x]^m\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}(1-m+n),\,\frac{1}{2}(3-m+n),\,-\text{Tan}[e+f\,x]^2\right]\,(b\,\text{Tan}[e+f\,x])^{1+n}}{b\,f\,(1-m+n)}$$

Result (type 6, 2967 leaves):

$$-\left(\left(\left(2\,e^{n\,\text{Log}[\text{Cot}[e+f\,x]]+n\,\text{Log}[\text{Tan}[e+f\,x]]}\,(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\,\text{Cot}[e+f\,x]^{2\,m-n}\,(b\,\text{Tan}[e+f\,x])^n\right)\Big/$$
$$\left(f\,(-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),\,-m+n,\,2,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,1-m+n,\,1,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\Big(-\Big(\Big(2\,(-3+m-n)\,n\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]$$

$$\text{Cos}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]\,\text{Cot}[e+f\,x]^m\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^{-1+n}\Big)\Big/$$

$$\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,-m+n,\,2,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,1-m+n,\,1,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)\Big)+$$

$$\Big(2\,(-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cos}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2$$

$$\text{Cot}[e+f\,x]^m\,\text{Tan}[e+f\,x]^n\Big)\Big/\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,-m+n,\,2,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,1-m+n,\,1,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$\Big((-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2$$

$$\text{Cot}[e+f\,x]^m\,\text{Tan}[e+f\,x]^n\Big)\Big/\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,-m+n,\,2,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(3-m+n),\,1-m+n,\,1,\,\tfrac{1}{2}\,(5-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\tfrac{1}{2}\,(1-m+n),\,-m+n,\,1,\,\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)-$$

$$\Big(2\,(-3+m-n)\,\text{Cos}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\,\text{Cot}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]\,\text{Cot}[e+f\,x]^m\,\Big(-\frac{1}{3-m+n}\,(1-m+n)\,\text{AppellF1}\Big[1+\tfrac{1}{2}\,(1-m+n),\,-m+n,\,2,\,1+$$

$$\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]+\frac{1}{3-m+n}\,(-m+n)\,(1-m+n)\,\text{AppellF1}\Big[$$

$$1+\tfrac{1}{2}\,(1-m+n),\,1-m+n,\,1,\,1+\tfrac{1}{2}\,(3-m+n),\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\tfrac{1}{2}\,(e+f\,x)\Big]\Big)$$

$$\text{Tan}[e+f x]^n\Big) \Big/ \Big((-1+m-n)\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)+$$

$$\Big(2(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]$$

$$\text{Cot}[e+f x]^m\Big(-(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]$$

$$\text{Csc}\Big[\frac{1}{2}(e+f x)\Big]^2+(-3+m-n)\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n),-m+n,2,1+\frac{1}{2}(3-m+n),$$

$$\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3-m+n}(-m+n)(1-m+n)\,\text{AppellF1}\Big[$$

$$1+\frac{1}{2}(1-m+n),1-m+n,1,1+\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)+$$

$$2\Big(-\frac{1}{5-m+n}2(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),-m+n,3,1+\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{5-m+n}(-m+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1-m+n,$$

$$2,1+\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)+$$

$$2(m-n)\Big(-\frac{1}{5-m+n}(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1-m+n,2,1+\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{5-m+n}(1-m+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),2-m+n,1,$$

$$1+\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big)\,\text{Tan}[e+f x]^n\Big) \Big/$$

$$\Big((-1+m-n)\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^2\Big)+$$

$$\Big(2m(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\left.\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Cot}\left[\frac{1}{2}(e+f x)\right] \text{Cot}[e+f x]^m \text{Csc}[e+f x]^2 \text{Tan}[e+f x]^{1+n}\right) \Big/ \left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ 2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ (-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 224: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (a\,\text{Cot}[e+f x])^m\,\text{Tan}[e+f x]^n\,dx$$

Optimal (type 5, 64 leaves, 3 steps):

$$\frac{(a\,\text{Cot}[e+f x])^m\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}(1-m+n),\frac{1}{2}(3-m+n),-\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]^{1+n}}{f\,(1-m+n)}$$

Result (type 6, 2973 leaves):

$$-\Bigg(\Bigg(\left(2\,e^{n\,\text{Log}[\text{Cot}[e+f x]]+n\,\text{Log}[\text{Tan}[e+f x]]}(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Cot}\left[\frac{1}{2}(e+f x)\right] \text{Cot}[e+f x]^{m-n}\,(a\,\text{Cot}[e+f x])^m\,\text{Tan}[e+f x]^n\right) \Big/ \left(f\,(-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ 2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ (-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.$$

$$\Bigg(-\Bigg(\Bigg(2(-3+m-n)\,n\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Cot}\left[\frac{1}{2}(e+f x)\right] \text{Cot}[e+f x]^m \text{Sec}[e+f x]^2 \text{Tan}[e+f x]^{-1+n}\Bigg) \Big/ \left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ 2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+ (-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Bigg)\Bigg)+$$

$$\left(2\,(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\text{Cot}[e+f\,x]^m\,\text{Tan}[e+f\,x]^n\right)\Big/\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),-m+n,2,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),1-m+n,1,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left((-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\text{Cot}[e+f\,x]^m\,\text{Tan}[e+f\,x]^n\right)\Big/\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),-m+n,2,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),1-m+n,1,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(2\,(-3+m-n)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\text{Cot}[e+f\,x]^m\left(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}\,(1-m+n),-m+n,2,1+\right.\right.\right.$$

$$\left.\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\frac{1}{3-m+n}(-m+n)\,(1-m+n)\,\text{AppellF1}\Big[$$

$$\left.1+\frac{1}{2}\,(1-m+n),1-m+n,1,1+\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^n\right)\Big/\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),-m+n,2,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n),1-m+n,1,\frac{1}{2}\,(5-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(2\,(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\right.$$

$$\text{Cot}[e+f\,x]^m\left(-(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n),-m+n,1,\frac{1}{2}\,(3-m+n),\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]\right.$$

$$\text{Csc}\left[\frac{1}{2}\,(e+f\,x)\right]^2+(-3+m-n)\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}\,(1-m+n),-m+n,2,1+\frac{1}{2}\,(3-m+n),\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\frac{1}{3-m+n}(-m+n)\,(1-m+n)\,\text{AppellF1}\Big[$$

$$1+\frac{1}{2}(1-m+n),\,1-m+n,\,1,\,1+\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$2\left(-\frac{1}{5-m+n}2(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),\,-m+n,\,3,\,1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}(-m+n)\,(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),\,1-m+n,$$

$$\left.2,\,1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$2\,(m-n)\,\left(-\frac{1}{5-m+n}(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),\,1-m+n,\,2,\,1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}(1-m+n)\,(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),\,2-m+n,\,1,$$

$$\left.\left.\left.1+\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\,\text{Tan}[e+f x]^n\right)\Big/$$

$$\left((-1+m-n)\,\left(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),\,-m+n,\,2,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),\,1-m+n,\,1,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)+$$

$$\left(2\,m\,(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\right.$$

$$\left.\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]\,\text{Cot}[e+f x]^m\,\text{Csc}[e+f x]^2\,\text{Tan}[e+f x]^{1+n}\right)\Big/$$

$$\left((-1+m-n)\,\left(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),\,-m+n,\,2,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+\right.\right.$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),\,1-m+n,\,1,\,\frac{1}{2}(5-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+$$

$$\left.\left.(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),\,-m+n,\,1,\,\frac{1}{2}(3-m+n),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 225: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (a\,\text{Cot}[e+f x])^m\,(b\,\text{Tan}[e+f x])^n\,dx$$

Optimal (type 5, 69 leaves, 3 steps):

$$\frac{(a\,\text{Cot}[e+f x])^m\,\text{Hypergeometric2F1}\Big[1,\,\frac{1}{2}(1-m+n),\,\frac{1}{2}(3-m+n),\,-\text{Tan}[e+f x]^2\Big]\,(b\,\text{Tan}[e+f x])^{1+n}}{b\,f\,(1-m+n)}$$

Result (type 6, 2975 leaves):

$$-\Big(\Big(2\, e^{n\,\text{Log}[\text{Cot}[e+f x]]+n\,\text{Log}[\text{Tan}[e+f x]]}\,(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]\,\text{Cot}[e+f x]^{m-n}\,(a\,\text{Cot}[e+f x])^m\,(b\,\text{Tan}[e+f x])^n\Big)\Big/$$

$$\Big(f\,(-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)$$

$$\Big(-\Big(\Big(2\,(-3+m-n)\,n\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]\,\text{Cot}[e+f x]^m\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^{-1+n}\Big)\Big/$$

$$\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)\Big)+$$

$$\Big(2\,(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^2$$

$$\text{Cot}[e+f x]^m\,\text{Tan}[e+f x]^n\Big)\Big/\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)+$$

$$\Big((-3+m-n)\,\text{AppellF1}\Big[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2$$

$$\text{Cot}[e+f x]^m\,\text{Tan}[e+f x]^n\Big)\Big/\Big((-1+m-n)\,\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2\,(m-n)\,\text{AppellF1}\Big[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(2(-3+m-n)\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Cot}[e+f x]^m\Bigg(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n),-m+n,2,1+$$
$$\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n}(-m+n)(1-m+n)\,\text{AppellF1}\Big[$$
$$1+\frac{1}{2}(1-m+n),1-m+n,1,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)$$
$$\text{Tan}[e+f x]^n\Bigg)\Bigg/\Bigg((-1+m-n)\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\text{Cot}\left[\frac{1}{2}(e+f x)\right]$$
$$\text{Cot}[e+f x]^m\Bigg(-(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]$$
$$\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2+(-3+m-n)\,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-\frac{1}{3-m+n}(1-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n),-m+n,2,1+\frac{1}{2}(3-m+n),$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n}(-m+n)(1-m+n)\,\text{AppellF1}\Big[$$
$$1+\frac{1}{2}(1-m+n),1-m+n,1,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$
$$2\Bigg(-\frac{1}{5-m+n}2(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),-m+n,3,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}(-m+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1-m+n,$$
$$2,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$
$$2(m-n)\Bigg(-\frac{1}{5-m+n}(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1-m+n,2,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}(1-m+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),2-m+n,1,$$
$$1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\text{Tan}[e+f x]^n\Bigg)\Bigg/$$

$$\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)+$$
$$\left(2\,m\,(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Cot}[e+f x]^m\,\text{Csc}[e+f x]^2\,\text{Tan}[e+f x]^{1+n}\right)\Big/$$
$$\left((-1+m-n)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),-m+n,2,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2(m-n)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1-m+n,1,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$\left.\left.\left.\left.(-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),-m+n,1,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right)$$

- **Problem 231: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Sec}[e+f x]^3\sqrt{d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 4, 107 leaves, 5 steps):

$$-\frac{4\,\text{Cos}[e+f x]\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Tan}[e+f x]}}{5 f\sqrt{\text{Sin}[2e+2f x]}}+\frac{4\,\text{Cos}[e+f x]\,(d\,\text{Tan}[e+f x])^{3/2}}{5 d f}+\frac{2\,\text{Sec}[e+f x]\,(d\,\text{Tan}[e+f x])^{3/2}}{5 d f}$$

Result (type 4, 139 leaves):

$$\frac{1}{5 f\sqrt{\text{Tan}[e+f x]}}2\,\text{Cos}[e+f x]\sqrt{d\,\text{Tan}[e+f x]}\left(-2(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}+\right.$$
$$\left.2(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}+\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^{3/2}\right)$$

- **Problem 232: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Sec}[e+f x]\sqrt{d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 4, 75 leaves, 4 steps):

$$-\frac{2\,\text{Cos}[e+f x]\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Tan}[e+f x]}}{f\sqrt{\text{Sin}[2e+2f x]}}+\frac{2\,\text{Cos}[e+f x]\,(d\,\text{Tan}[e+f x])^{3/2}}{d f}$$

Result (type 4, 99 leaves):

$$-\frac{1}{f\sqrt{\text{Tan}[e+f x]}}2\,(-1)^{3/4}\,\text{Cos}[e+f x]\left(\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]-\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\right)\sqrt{\text{Sec}[e+f x]^2}\,\sqrt{d\,\text{Tan}[e+f x]}$$

- **Problem 233: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[e+f x]\,\sqrt{d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 4, 47 leaves, 3 steps) :

$$\frac{\text{Cos}[e+f x]\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Tan}[e+f x]}}{f\sqrt{\text{Sin}[2e+2f x]}}$$

Result (type 4, 126 leaves) :

$$\frac{1}{f\sqrt{\text{Tan}[e+f x]}}\text{Cos}[e+f x]\,\sqrt{d\,\text{Tan}[e+f x]}\,\left((-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}-(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}+\text{Tan}[e+f x]^{3/2}\right)$$

- **Problem 234: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Cos}[e+f x]^3\,\sqrt{d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 4, 81 leaves, 4 steps) :

$$\frac{\text{Cos}[e+f x]\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Tan}[e+f x]}}{2f\sqrt{\text{Sin}[2e+2f x]}}+\frac{\text{Cos}[e+f x]^3\,(d\,\text{Tan}[e+f x])^{3/2}}{3\,d\,f}$$

Result (type 4, 154 leaves) :

$$\frac{1}{12f\sqrt{\text{Tan}[e+f x]}}\text{Cos}[e+f x]\left(6\,(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}-6\,(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}+\text{Sec}[e+f x]\,(7\,\text{Sin}[e+f x]+\text{Sin}[3\,(e+f x)])\sqrt{\text{Tan}[e+f x]}\right)\sqrt{d\,\text{Tan}[e+f x]}$$

- **Problem 235: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Cos}[e+f x]^5\,\sqrt{d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 4, 111 leaves, 5 steps) :

$$\frac{7\,\text{Cos}[e+f x]\,\text{EllipticE}\left[e-\frac{\pi}{4}+f x,2\right]\sqrt{d\,\text{Tan}[e+f x]}}{20 f\sqrt{\text{Sin}[2 e+2 f x]}}+\frac{7\,\text{Cos}[e+f x]^3\,(d\,\text{Tan}[e+f x])^{3/2}}{30 d f}+\frac{\text{Cos}[e+f x]^5\,(d\,\text{Tan}[e+f x])^{3/2}}{5 d f}$$

Result (type 4, 166 leaves) :

$$\frac{1}{240 f\sqrt{\text{Tan}[e+f x]}}\text{Cos}[e+f x]\left(84\,(-1)^{3/4}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}-84\,(-1)^{3/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[e+f x]}\right],-1\right]\sqrt{\text{Sec}[e+f x]^2}+\text{Sec}[e+f x]\,(104\,\text{Sin}[e+f x]+23\,\text{Sin}[3\,(e+f x)]+3\,\text{Sin}[5\,(e+f x)])\sqrt{\text{Tan}[e+f x]}\right)\sqrt{d\,\text{Tan}[e+f x]}$$

- **Problem 241: Result unnecessarily involves imaginary or complex numbers.**

$$\int\text{Sec}[a+b x]^5\,(d\,\text{Tan}[a+b x])^{3/2}\,dx$$

Optimal (type 4, 136 leaves, 6 steps) :

$$-\frac{4 d^2\,\text{EllipticF}\left[a-\frac{\pi}{4}+b x,2\right]\text{Sec}[a+b x]\sqrt{\text{Sin}[2 a+2 b x]}}{77 b\sqrt{d\,\text{Tan}[a+b x]}}-\frac{4 d\,\text{Sec}[a+b x]\sqrt{d\,\text{Tan}[a+b x]}}{77 b}-\frac{2 d\,\text{Sec}[a+b x]^3\sqrt{d\,\text{Tan}[a+b x]}}{77 b}+\frac{2 d\,\text{Sec}[a+b x]^5\sqrt{d\,\text{Tan}[a+b x]}}{11 b}$$

Result (type 4, 122 leaves) :

$$\frac{1}{77 b\,\text{Tan}[a+b x]^{3/2}}2\,\text{Cos}[a+b x]^3\left(4\,(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\sqrt{\text{Tan}[a+b x]}\right],-1\right]\left(\text{Sec}[a+b x]^2\right)^{3/2}-\frac{1}{4}\,(-23+6\,\text{Cos}[2\,(a+b x)]+\text{Cos}[4\,(a+b x)])\,\text{Sec}[a+b x]^8\sqrt{\text{Tan}[a+b x]}\right)(d\,\text{Tan}[a+b x])^{3/2}$$

- **Problem 242: Result unnecessarily involves imaginary or complex numbers.**

$$\int\text{Sec}[a+b x]^3\,(d\,\text{Tan}[a+b x])^{3/2}\,dx$$

Optimal (type 4, 108 leaves, 5 steps) :

$$-\frac{2 d^2\,\text{EllipticF}\left[a-\frac{\pi}{4}+b x,2\right]\text{Sec}[a+b x]\sqrt{\text{Sin}[2 a+2 b x]}}{21 b\sqrt{d\,\text{Tan}[a+b x]}}-\frac{2 d\,\text{Sec}[a+b x]\sqrt{d\,\text{Tan}[a+b x]}}{21 b}+\frac{2 d\,\text{Sec}[a+b x]^3\sqrt{d\,\text{Tan}[a+b x]}}{7 b}$$

Result (type 4, 110 leaves) :

$$-\frac{1}{21\,b\,\sqrt{\mathrm{Tan}[a+b\,x]}}d\,\mathrm{Sec}[a+b\,x]^3\left(-4\,(-1)^{1/4}\,\mathrm{Cos}[a+b\,x]^4\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+(-5+\mathrm{Cos}[2\,(a+b\,x)])\,\sqrt{\mathrm{Tan}[a+b\,x]}\right)\sqrt{d\,\mathrm{Tan}[a+b\,x]}$$

- **Problem 243: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Sec}[a+b\,x]\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 80 leaves, 4 steps):

$$-\frac{d^2\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\mathrm{Sec}[a+b\,x]\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}}{3\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{2\,d\,\mathrm{Sec}[a+b\,x]\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{3\,b}$$

Result (type 4, 87 leaves):

$$\frac{2\,\mathrm{Csc}[a+b\,x]\left(\frac{(-1)^{1/4}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]}{\sqrt{\mathrm{Sec}[a+b\,x]^2}}+\sqrt{\mathrm{Tan}[a+b\,x]}\right)(d\,\mathrm{Tan}[a+b\,x])^{3/2}}{3\,b\,\sqrt{\mathrm{Tan}[a+b\,x]}}$$

- **Problem 244: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Cos}[a+b\,x]\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$\frac{d^2\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\mathrm{Sec}[a+b\,x]\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}}{2\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}-\frac{d\,\mathrm{Cos}[a+b\,x]\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{b}$$

Result (type 4, 85 leaves):

$$-\frac{1}{b\,\mathrm{Tan}[a+b\,x]^{3/2}}\mathrm{Cos}[a+b\,x]\left((-1)^{1/4}\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\mathrm{Tan}[a+b\,x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\,x]^2}+\sqrt{\mathrm{Tan}[a+b\,x]}\right)(d\,\mathrm{Tan}[a+b\,x])^{3/2}$$

- **Problem 245: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Cos}[a+b\,x]^3\,(d\,\mathrm{Tan}[a+b\,x])^{3/2}\,dx$$

Optimal (type 4, 108 leaves, 5 steps):

$$\frac{d^2\,\mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\,x,2\right]\mathrm{Sec}[a+b\,x]\,\sqrt{\mathrm{Sin}[2\,a+2\,b\,x]}}{12\,b\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}+\frac{d\,\mathrm{Cos}[a+b\,x]\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{6\,b}-\frac{d\,\mathrm{Cos}[a+b\,x]^3\,\sqrt{d\,\mathrm{Tan}[a+b\,x]}}{3\,b}$$

Result (type 4, 96 leaves):

$$-\frac{1}{6\, b\, \mathrm{Tan}[a+b\, x]^{3/2}}\mathrm{Cos}[a+b\, x]\left((-1)^{1/4}\, \mathrm{EllipticF}\left[i\, \mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\, x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\, x]^2}+\mathrm{Cos}[2\,(a+b\, x)]\sqrt{\mathrm{Tan}[a+b\, x]}\right)(d\, \mathrm{Tan}[a+b\, x])^{3/2}$$

- **Problem 246: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Cos}[a+b\, x]^5\,(d\, \mathrm{Tan}[a+b\, x])^{3/2}\, dx$$

Optimal (type 4, 136 leaves, 6 steps) :

$$\frac{d^2\, \mathrm{EllipticF}\left[a-\frac{\pi}{4}+b\, x,\, 2\right]\mathrm{Sec}[a+b\, x]\sqrt{\mathrm{Sin}[2\, a+2\, b\, x]}}{24\, b\sqrt{d\, \mathrm{Tan}[a+b\, x]}}+\frac{d\, \mathrm{Cos}[a+b\, x]\sqrt{d\, \mathrm{Tan}[a+b\, x]}}{12\, b}+\frac{d\, \mathrm{Cos}[a+b\, x]^3\sqrt{d\, \mathrm{Tan}[a+b\, x]}}{30\, b}-\frac{d\, \mathrm{Cos}[a+b\, x]^5\sqrt{d\, \mathrm{Tan}[a+b\, x]}}{5\, b}$$

Result (type 4, 131 leaves) :

$$\left(\mathrm{Cos}[2\,(a+b\, x)]\, \mathrm{Csc}[a+b\, x]\left(10\,(-1)^{1/4}\, \mathrm{EllipticF}\left[i\, \mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[a+b\, x]}\right],-1\right]\sqrt{\mathrm{Sec}[a+b\, x]^2}+(-3+10\, \mathrm{Cos}[2\,(a+b\, x)]+3\, \mathrm{Cos}[4\,(a+b\, x)])\sqrt{\mathrm{Tan}[a+b\, x]}\right)(d\, \mathrm{Tan}[a+b\, x])^{3/2}\right)\Big/\left(120\, b\sqrt{\mathrm{Tan}[a+b\, x]}\left(-1+\mathrm{Tan}[a+b\, x]^2\right)\right)$$

- **Problem 253: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\mathrm{Sec}[e+f\, x]^5}{\sqrt{d\, \mathrm{Tan}[e+f\, x]}}\, dx$$

Optimal (type 4, 109 leaves, 5 steps) :

$$\frac{4\, \mathrm{EllipticF}\left[e-\frac{\pi}{4}+f\, x,\, 2\right]\mathrm{Sec}[e+f\, x]\sqrt{\mathrm{Sin}[2\, e+2\, f\, x]}}{7\, f\sqrt{d\, \mathrm{Tan}[e+f\, x]}}+\frac{4\, \mathrm{Sec}[e+f\, x]\sqrt{d\, \mathrm{Tan}[e+f\, x]}}{7\, d\, f}+\frac{2\, \mathrm{Sec}[e+f\, x]^3\sqrt{d\, \mathrm{Tan}[e+f\, x]}}{7\, d\, f}$$

Result (type 4, 104 leaves) :

$$\frac{1}{7\, f\sqrt{d\, \mathrm{Tan}[e+f\, x]}}\mathrm{Sec}[e+f\, x]^4\left(3\, \mathrm{Sin}[e+f\, x]+\mathrm{Sin}[3\,(e+f\, x)]-8\,(-1)^{1/4}\, \mathrm{Cos}[e+f\, x]^5\, \mathrm{EllipticF}\left[i\, \mathrm{ArcSinh}\left[(-1)^{1/4}\sqrt{\mathrm{Tan}[e+f\, x]}\right],-1\right]\sqrt{\mathrm{Sec}[e+f\, x]^2}\sqrt{\mathrm{Tan}[e+f\, x]}\right)$$

- **Problem 254: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\mathrm{Sec}[e+f\, x]^3}{\sqrt{d\, \mathrm{Tan}[e+f\, x]}}\, dx$$

Optimal (type 4, 79 leaves, 4 steps):

$$\frac{2\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\text{Sec}[e+f\,x]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{3\,f\,\sqrt{d\,\text{Tan}[e+f\,x]}}+\frac{2\,\text{Sec}[e+f\,x]\,\sqrt{d\,\text{Tan}[e+f\,x]}}{3\,d\,f}$$

Result (type 4, 84 leaves):

$$\frac{2\,\text{Sec}[e+f\,x]\left(-\frac{2\,(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}\right],-1\right]\,\sqrt{\text{Tan}[e+f\,x]}}{\sqrt{\text{Sec}[e+f\,x]^2}}+\text{Tan}[e+f\,x]\right)}{3\,f\,\sqrt{d\,\text{Tan}[e+f\,x]}}$$

- **Problem 255: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Sec}[e+f\,x]}{\sqrt{d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 4, 47 leaves, 3 steps):

$$\frac{\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\text{Sec}[e+f\,x]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{f\,\sqrt{d\,\text{Tan}[e+f\,x]}}$$

Result (type 4, 77 leaves):

$$-\frac{2\,(-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}\right],-1\right]\,\text{Sec}[e+f\,x]^3\,\sqrt{\text{Tan}[e+f\,x]}}{f\,\sqrt{d\,\text{Tan}[e+f\,x]}\,\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}}$$

- **Problem 256: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cos}[e+f\,x]}{\sqrt{d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 4, 76 leaves, 4 steps):

$$\frac{\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\text{Sec}[e+f\,x]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{2\,f\,\sqrt{d\,\text{Tan}[e+f\,x]}}+\frac{\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Tan}[e+f\,x]}}{d\,f}$$

Result (type 4, 126 leaves):

$$\left(\text{Cos}[2\,(e+f\,x)]\,\text{Sec}[e+f\,x]\,\left((-1)^{1/4}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}\right],-1\right]\,\text{Sec}[e+f\,x]^2-\sqrt{\text{Sec}[e+f\,x]^2}\,\sqrt{\text{Tan}[e+f\,x]}\,\sqrt{\text{Tan}[e+f\,x]}\right)\right)\Big/\left(f\,\sqrt{\text{Sec}[e+f\,x]^2}\,\sqrt{d\,\text{Tan}[e+f\,x]}\,\left(-1+\text{Tan}[e+f\,x]^2\right)\right)$$

- **Problem 257: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cos}[e+f\,x]^3}{\sqrt{d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 4, 109 leaves, 5 steps):

$$\frac{5\,\text{EllipticF}\left[e-\frac{\pi}{4}+f\,x,\,2\right]\,\text{Sec}[e+f\,x]\,\sqrt{\text{Sin}[2\,e+2\,f\,x]}}{12\,f\,\sqrt{d\,\text{Tan}[e+f\,x]}}+\frac{5\,\text{Cos}[e+f\,x]\,\sqrt{d\,\text{Tan}[e+f\,x]}}{6\,d\,f}+\frac{\text{Cos}[e+f\,x]^3\,\sqrt{d\,\text{Tan}[e+f\,x]}}{3\,d\,f}$$

Result (type 4, 94 leaves):

$$\frac{1}{12\,f\,\sqrt{d\,\text{Tan}[e+f\,x]}}\left(11\,\text{Sin}[e+f\,x]+\text{Sin}[3\,(e+f\,x)]-10\,(-1)^{1/4}\,\text{Cos}[e+f\,x]\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[e+f\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[e+f\,x]^2}\,\sqrt{\text{Tan}[e+f\,x]}\right)$$

Problem 263: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[a+b\,x]^5}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 138 leaves, 6 steps):

$$-\frac{2\,\text{Sec}[a+b\,x]^3}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{24\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{d\,\text{Tan}[a+b\,x]}}{5\,b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}+\frac{24\,\text{Cos}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}}{5\,b\,d^3}+\frac{12\,\text{Sec}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}}{5\,b\,d^3}$$

Result (type 4, 151 leaves):

$$-\frac{1}{5\,b\,(d\,\text{Tan}[a+b\,x])^{3/2}}2\,\text{Sin}[a+b\,x]\left((2+3\,\text{Cos}[2\,(a+b\,x)])\,\text{Sec}[a+b\,x]^4+12\,(-1)^{3/4}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}-12\,(-1)^{3/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)$$

Problem 264: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[a+b\,x]^3}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 104 leaves, 5 steps):

$$-\frac{2\,\text{Sec}[a+b\,x]}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{4\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{d\,\text{Tan}[a+b\,x]}}{b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}+\frac{4\,\text{Cos}[a+b\,x]\,(d\,\text{Tan}[a+b\,x])^{3/2}}{b\,d^3}$$

Result (type 4, 136 leaves):

$$-\frac{1}{b\,(d\,\text{Tan}[a+b\,x])^{3/2}}2\,\text{Sin}[a+b\,x]\left(\text{Sec}[a+b\,x]^2+2\,(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}-2\,(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)$$

Problem 265: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Sec}[a+b\,x]}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$-\frac{2\,\text{Cos}[a+b\,x]}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{2\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,2\right]\sqrt{d\,\text{Tan}[a+b\,x]}}{b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}$$

Result (type 4, 135 leaves):

$$-\frac{1}{b\,(d\,\text{Tan}[a+b\,x])^{3/2}}2\,\text{Sin}[a+b\,x]\left(\text{Sec}[a+b\,x]^2+(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}-(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)$$

Problem 266: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[a+b\,x]}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 78 leaves, 4 steps):

$$-\frac{2\,\text{Cos}[a+b\,x]}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{3\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,2\right]\sqrt{d\,\text{Tan}[a+b\,x]}}{b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}$$

Result (type 4, 142 leaves):

$$\frac{1}{2\,b\,d^2}\text{Csc}[a+b\,x]\left(-5+\text{Cos}[2\,(a+b\,x)]-\frac{6\,(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}+\frac{6\,(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}\right)\sqrt{d\,\text{Tan}[a+b\,x]}$$

Problem 267: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Cos}[a+b\,x]^3}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 112 leaves, 5 steps):

$$-\frac{2\,\text{Cos}[a+b\,x]^3}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{7\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\sqrt{d\,\text{Tan}[a+b\,x]}}{2\,b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}-\frac{7\,\text{Cos}[a+b\,x]^3\,(d\,\text{Tan}[a+b\,x])^{3/2}}{3\,b\,d^3}$$

Result (type 4, 152 leaves) :

$$\frac{1}{24\,b\,d^2}\text{Csc}[a+b\,x]\left(-67+18\,\text{Cos}[2\,(a+b\,x)]+\text{Cos}[4\,(a+b\,x)]-\frac{84\,(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}+\frac{84\,(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}\right)\sqrt{d\,\text{Tan}[a+b\,x]}$$

- **Problem 268: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cos}[a+b\,x]^5}{(d\,\text{Tan}[a+b\,x])^{3/2}}\,dx$$

Optimal (type 4, 142 leaves, 6 steps) :

$$-\frac{2\,\text{Cos}[a+b\,x]^5}{b\,d\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{77\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\sqrt{d\,\text{Tan}[a+b\,x]}}{20\,b\,d^2\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}-\frac{77\,\text{Cos}[a+b\,x]^3\,(d\,\text{Tan}[a+b\,x])^{3/2}}{30\,b\,d^3}-\frac{11\,\text{Cos}[a+b\,x]^5\,(d\,\text{Tan}[a+b\,x])^{3/2}}{5\,b\,d^3}$$

Result (type 4, 164 leaves) :

$$\frac{1}{480\,b\,d^2}\text{Csc}[a+b\,x]\left(-1444+441\,\text{Cos}[2\,(a+b\,x)]+40\,\text{Cos}[4\,(a+b\,x)]+3\,\text{Cos}[6\,(a+b\,x)]-\frac{1848\,(-1)^{3/4}\,\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}+\frac{1848\,(-1)^{3/4}\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\sqrt{\text{Tan}[a+b\,x]}}{\sqrt{\text{Sec}[a+b\,x]^2}}\right)\sqrt{d\,\text{Tan}[a+b\,x]}$$

- **Problem 269: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Sec}[a+b\,x]}{(d\,\text{Tan}[a+b\,x])^{5/2}}\,dx$$

Optimal (type 4, 82 leaves, 4 steps) :

$$-\frac{2\,\text{Sec}[a+b\,x]}{3\,b\,d\,(d\,\text{Tan}[a+b\,x])^{3/2}}-\frac{\text{EllipticF}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\text{Sec}[a+b\,x]\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}{3\,b\,d^2\,\sqrt{d\,\text{Tan}[a+b\,x]}}$$

Result (type 4, 113 leaves) :

$$\left(2\,\text{Cos}[2\,(a+b\,x)]\,\text{Csc}[a+b\,x]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\left(\sqrt{\text{Sec}[a+b\,x]^2}-(-1)^{1/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\text{Tan}[a+b\,x]^{3/2}\right)\right)\Big/\left(3\,b\,d^2\,\sqrt{d\,\text{Tan}[a+b\,x]}\,\left(-1+\text{Tan}[a+b\,x]^2\right)\right)$$

- **Problem 270: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Sec}[a+b\,x]^3}{(d\,\text{Tan}[a+b\,x])^{7/2}}\,dx$$

Optimal (type 4, 110 leaves, 5 steps) :

$$-\frac{2\,\text{Sec}[a+b\,x]}{5\,b\,d\,(d\,\text{Tan}[a+b\,x])^{5/2}}-\frac{4\,\text{Cos}[a+b\,x]}{5\,b\,d^3\,\sqrt{d\,\text{Tan}[a+b\,x]}}-\frac{4\,\text{Cos}[a+b\,x]\,\text{EllipticE}\left[a-\frac{\pi}{4}+b\,x,\,2\right]\,\sqrt{d\,\text{Tan}[a+b\,x]}}{5\,b\,d^4\,\sqrt{\text{Sin}[2\,a+2\,b\,x]}}$$

Result (type 4, 153 leaves) :

$$\frac{1}{5\,b\,d^3\,\sqrt{d\,\text{Tan}[a+b\,x]}}4\,\text{Cos}[a+b\,x]\left((-3+\text{Cos}[2\,(a+b\,x)])\,\text{Csc}[2\,(a+b\,x)]^2-(-1)^{3/4}\,\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}+(-1)^{3/4}\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[(-1)^{1/4}\,\sqrt{\text{Tan}[a+b\,x]}\right],\,-1\right]\,\sqrt{\text{Sec}[a+b\,x]^2}\,\sqrt{\text{Tan}[a+b\,x]}\right)$$

- **Problem 292: Result unnecessarily involves higher level functions.**

$$\int(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 93 leaves, 4 steps) :

$$-\frac{d^2\,\text{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\,\sqrt{b\,\text{Tan}[e+f\,x]}}{f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}+\frac{d^2\,(b\,\text{Tan}[e+f\,x])^{3/2}}{b\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}$$

Result (type 5, 64 leaves) :

$$\frac{2\,b\,\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{7}{4},\,\text{Sec}[e+f\,x]^2\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}}{3\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}$$

- **Problem 294: Result unnecessarily involves higher level functions.**

$$\int\frac{\sqrt{b\,\text{Tan}[e+f\,x]}}{\sqrt{d\,\text{Sec}[e+f\,x]}}\,dx$$

Optimal (type 4, 55 leaves, 3 steps):

$$\frac{2\,\text{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{f\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}$$

Result (type 5, 78 leaves):

$$-\frac{1}{3\,b\,f\sqrt{d\,\text{Sec}[e+f\,x]}}2\,(b\,\text{Tan}[e+f\,x])^{3/2}\left(-3+2\,\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\text{Sec}[e+f\,x]^2\right]\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 296: Result unnecessarily involves higher level functions.**

$$\int\frac{\sqrt{b\,\text{Tan}[e+f\,x]}}{(d\,\text{Sec}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 95 leaves, 4 steps):

$$\frac{4\,\text{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{5\,d^2\,f\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}+\frac{2\,(b\,\text{Tan}[e+f\,x])^{3/2}}{5\,b\,f\,(d\,\text{Sec}[e+f\,x])^{5/2}}$$

Result (type 5, 92 leaves):

$$\frac{1}{15\,b\,d^2\,f\sqrt{d\,\text{Sec}[e+f\,x]}}$$
$$(b\,\text{Tan}[e+f\,x])^{3/2}\left(3\,(5+\text{Cos}[2\,(e+f\,x)])-8\,\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\text{Sec}[e+f\,x]^2\right]\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 298: Result unnecessarily involves higher level functions.**

$$\int\frac{\sqrt{b\,\text{Tan}[e+f\,x]}}{(d\,\text{Sec}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 4, 132 leaves, 5 steps):

$$\frac{8\,\text{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\sqrt{b\,\text{Tan}[e+f\,x]}}{15\,d^4\,f\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}+\frac{2\,(b\,\text{Tan}[e+f\,x])^{3/2}}{9\,b\,f\,(d\,\text{Sec}[e+f\,x])^{9/2}}+\frac{4\,(b\,\text{Tan}[e+f\,x])^{3/2}}{15\,b\,d^2\,f\,(d\,\text{Sec}[e+f\,x])^{5/2}}$$

Result (type 5, 102 leaves):

$$\frac{1}{180\,b\,d^4\,f\sqrt{d\,\text{Sec}[e+f\,x]}}(b\,\text{Tan}[e+f\,x])^{3/2}$$
$$\left(44\,\text{Cos}[2\,(e+f\,x)]+5\,(27+\text{Cos}[4\,(e+f\,x)])-64\,\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\text{Sec}[e+f\,x]^2\right]\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 299: Result unnecessarily involves higher level functions.

$$\int (d\,\text{Sec}[e+f\,x])^{5/2}\,(b\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 4, 131 leaves, 5 steps):

$$-\frac{b^2\,d^2\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{6\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{b\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{6\,f}+\frac{b\,(d\,\text{Sec}[e+f\,x])^{5/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{3\,f}$$

Result (type 5, 95 leaves):

$$\frac{1}{6\,f\,\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}}\,b\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(\text{Hypergeometric2F1}\left[\frac{1}{4},\,\frac{3}{4},\,\frac{5}{4},\,\text{Sec}[e+f\,x]^2\right]+\left(-1+2\,\text{Sec}[e+f\,x]^2\right)\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 300: Result unnecessarily involves higher level functions.

$$\int (d\,\text{Sec}[e+f\,x])^{3/2}\,(b\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 169 leaves, 7 steps):

$$-\frac{b^{3/2}\,d\,\text{ArcTan}\left[\frac{\sqrt{b\,\text{Sin}[e+f\,x]}}{\sqrt{b}}\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Sin}[e+f\,x]}}{4\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{b^{3/2}\,d\,\text{ArcTanh}\left[\frac{\sqrt{b\,\text{Sin}[e+f\,x]}}{\sqrt{b}}\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Sin}[e+f\,x]}}{4\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{b\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{2\,f}$$

Result (type 5, 81 leaves):

$$\frac{1}{6\,f\,\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}}\,b\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(\text{Hypergeometric2F1}\left[\frac{3}{4},\,\frac{3}{4},\,\frac{7}{4},\,\text{Sec}[e+f\,x]^2\right]+3\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 301: Result unnecessarily involves higher level functions.

$$\int \sqrt{d\,\text{Sec}[e+f\,x]}\,(b\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 4, 88 leaves, 4 steps):

$$-\frac{b^2\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),\,2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{f\,\sqrt{b\,\text{Tan}[e+f\,x]}}+\frac{b\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}}{f}$$

Result (type 5, 76 leaves):

$$\frac{b\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\text{Sec}[e+f\,x]^2\right]+\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)}{f\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}}$$

- **Problem 302: Result unnecessarily involves higher level functions.**

$$\int\frac{(b\,\text{Tan}[e+f\,x])^{3/2}}{\sqrt{d\,\text{Sec}[e+f\,x]}}\,dx$$

Optimal (type 3, 167 leaves, 7 steps):

$$-\frac{2\,d\,\text{Csc}[e+f\,x]\,(b\,\text{Tan}[e+f\,x])^{3/2}}{f\,(d\,\text{Sec}[e+f\,x])^{3/2}}+\frac{b^{3/2}\,d\,\text{ArcTan}\left[\frac{\sqrt{b\,\text{Sin}[e+f\,x]}}{\sqrt{b}}\right]\,(b\,\text{Tan}[e+f\,x])^{3/2}}{f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(b\,\text{Sin}[e+f\,x])^{3/2}}+\frac{b^{3/2}\,d\,\text{ArcTanh}\left[\frac{\sqrt{b\,\text{Sin}[e+f\,x]}}{\sqrt{b}}\right]\,(b\,\text{Tan}[e+f\,x])^{3/2}}{f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(b\,\text{Sin}[e+f\,x])^{3/2}}$$

Result (type 5, 75 leaves):

$$\frac{2\,b\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(-3+\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\text{Sec}[e+f\,x]^2\right]\,\left(-\text{Tan}[e+f\,x]^2\right)^{3/4}\right)}{3\,f\sqrt{d\,\text{Sec}[e+f\,x]}}$$

- **Problem 303: Result unnecessarily involves higher level functions.**

$$\int\frac{(b\,\text{Tan}[e+f\,x])^{3/2}}{(d\,\text{Sec}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 96 leaves, 4 steps):

$$\frac{2\,b^2\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{3\,d^2\,f\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{2\,b\sqrt{b\,\text{Tan}[e+f\,x]}}{3\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}$$

Result (type 5, 91 leaves):

$$-\frac{1}{3\,d^2\,f\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}}2\,b\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\text{Sec}[e+f\,x]^2\right]+\text{Cos}[e+f\,x]^2\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 304: Result more than twice size of optimal antiderivative.**

$$\int\frac{(b\,\text{Tan}[e+f\,x])^{3/2}}{(d\,\text{Sec}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 34 leaves, 1 step):

$$\frac{2\,(b\,\text{Tan}[e+f\,x])^{5/2}}{5\,b\,f\,(d\,\text{Sec}[e+f\,x])^{5/2}}$$

Result (type 3, 141 leaves):

$$-\left(b \operatorname{Sec}[e+f x]^{3/2}\left(\sqrt{\frac{1}{1+\operatorname{Cos}[e+f x]}} \sqrt{\operatorname{Sec}[e+f x]}+\sqrt{\frac{1}{1+\operatorname{Cos}[e+f x]}} \operatorname{Cos}[3(e+f x)] \operatorname{Sec}[e+f x]^{3/2}-\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{1+\operatorname{Sec}[e+f x]}\right) \sqrt{b \operatorname{Tan}[e+f x]}\right) \Big/ \left(10 f \sqrt{\frac{1}{1+\operatorname{Cos}[e+f x]}} (d \operatorname{Sec}[e+f x])^{5/2}\right)$$

Problem 305: Result unnecessarily involves higher level functions.

$$\int \frac{(b \operatorname{Tan}[e+f x])^{3/2}}{(d \operatorname{Sec}[e+f x])^{7/2}} \, dx$$

Optimal (type 4, 131 leaves, 5 steps):

$$\frac{4 b^2 \operatorname{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}{21 d^4 f \sqrt{b \operatorname{Tan}[e+f x]}}-\frac{2 b \sqrt{b \operatorname{Tan}[e+f x]}}{7 f (d \operatorname{Sec}[e+f x])^{7/2}}+\frac{2 b \sqrt{b \operatorname{Tan}[e+f x]}}{21 d^2 f (d \operatorname{Sec}[e+f x])^{3/2}}$$

Result (type 5, 105 leaves):

$$-\left(b \sqrt{b \operatorname{Tan}[e+f x]}\left(4 \operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \operatorname{Sec}[e+f x]^2\right] \operatorname{Sec}[e+f x]^2+(1+3 \operatorname{Cos}[2(e+f x)])\left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}\right)\right) \Big/ \left(21 d^2 f (d \operatorname{Sec}[e+f x])^{3/2}\left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}\right)$$

Problem 308: Result unnecessarily involves higher level functions.

$$\int (d \operatorname{Sec}[e+f x])^{3/2} (b \operatorname{Tan}[e+f x])^{5/2} \, dx$$

Optimal (type 4, 131 leaves, 5 steps):

$$\frac{b^2 d^2 \operatorname{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{2 f \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}-\frac{b d^2 (b \operatorname{Tan}[e+f x])^{3/2}}{2 f \sqrt{d \operatorname{Sec}[e+f x]}}+\frac{b (d \operatorname{Sec}[e+f x])^{3/2} (b \operatorname{Tan}[e+f x])^{3/2}}{3 f}$$

Result (type 5, 86 leaves):

$$\frac{1}{3 f \sqrt{d \operatorname{Sec}[e+f x]}} b d^2 \operatorname{Csc}[e+f x]^2 (b \operatorname{Tan}[e+f x])^{3/2}\left(\operatorname{Tan}[e+f x]^2-\operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \operatorname{Sec}[e+f x]^2\right]\left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}\right)$$

Problem 310: Result unnecessarily involves higher level functions.

$$\int \frac{(b \operatorname{Tan}[e+f x])^{5/2}}{\sqrt{d \operatorname{Sec}[e+f x]}} \, dx$$

Optimal (type 4, 88 leaves, 4 steps):

$$-\frac{3 b^2 \operatorname{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{f \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}+\frac{b (b \operatorname{Tan}[e+f x])^{3/2}}{f \sqrt{d \operatorname{Sec}[e+f x]}}$$

Result (type 5, 81 leaves):

$$\frac{1}{f\sqrt{d\,\mathrm{Sec}[e+f\,x]}}\,b\,\mathrm{Csc}[e+f\,x]^2\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}\left(-1+\mathrm{Cos}[2\,(e+f\,x)]+2\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 312: Result unnecessarily involves higher level functions.**

$$\int \frac{(b\,\mathrm{Tan}[e+f\,x])^{5/2}}{(d\,\mathrm{Sec}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 96 leaves, 4 steps):

$$\frac{6\,b^2\,\mathrm{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{5\,d^2\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Sin}[e+f\,x]}}-\frac{2\,b\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}{5\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/2}}$$

Result (type 5, 87 leaves):

$$-\frac{1}{5\,d^2\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}}\,b\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}\left(-5+\mathrm{Cos}[2\,(e+f\,x)]+4\,\mathrm{Csc}[e+f\,x]^2\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 314: Result unnecessarily involves higher level functions.**

$$\int \frac{(b\,\mathrm{Tan}[e+f\,x])^{5/2}}{(d\,\mathrm{Sec}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 4, 131 leaves, 5 steps):

$$\frac{4\,b^2\,\mathrm{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{15\,d^4\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Sin}[e+f\,x]}}-\frac{2\,b\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}{9\,f\,(d\,\mathrm{Sec}[e+f\,x])^{9/2}}+\frac{2\,b\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}{15\,d^2\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/2}}$$

Result (type 5, 100 leaves):

$$-\frac{1}{180\,d^4\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}}\,b\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}\left(8\,\mathrm{Cos}[2\,(e+f\,x)]+5\,(-9+\mathrm{Cos}[4\,(e+f\,x)])+32\,\mathrm{Csc}[e+f\,x]^2\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

- **Problem 315: Result unnecessarily involves higher level functions.**

$$\int \frac{(d\,\mathrm{Sec}[e+f\,x])^{7/2}}{\sqrt{b\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 178 leaves, 7 steps):

$$\frac{3\, d^3 \text{ArcTan}\left[\frac{\sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}}\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{b \text{Sin}[e+f x]}}{4 \sqrt{b}\, f \sqrt{b \text{Tan}[e+f x]}}+$$

$$\frac{3\, d^3 \text{ArcTanh}\left[\frac{\sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}}\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{b \text{Sin}[e+f x]}}{4 \sqrt{b}\, f \sqrt{b \text{Tan}[e+f x]}}+\frac{d^2 (d \text{Sec}[e+f x])^{3/2} \sqrt{b \text{Tan}[e+f x]}}{2\, b\, f}$$

Result (type 5, 87 leaves) :

$$\frac{d\, (d \text{Sec}[e+f x])^{5/2} \text{Sin}[e+f x] \left(-\text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \text{Sec}[e+f x]^2\right]+\left(-\text{Tan}[e+f x]^2\right)^{1/4}\right)}{2\, f \sqrt{b \text{Tan}[e+f x]} \left(-\text{Tan}[e+f x]^2\right)^{1/4}}$$

Problem 316: Result unnecessarily involves higher level functions.

$$\int \frac{(d \text{Sec}[e+f x])^{5/2}}{\sqrt{b \text{Tan}[e+f x]}}\, dx$$

Optimal (type 4, 92 leaves, 4 steps) :

$$\frac{d^2 \text{EllipticF}\left[\frac{1}{2} \left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{\text{Sin}[e+f x]}}{f \sqrt{b \text{Tan}[e+f x]}}+\frac{d^2 \sqrt{d \text{Sec}[e+f x]} \sqrt{b \text{Tan}[e+f x]}}{b\, f}$$

Result (type 5, 84 leaves) :

$$\frac{d\, (d \text{Sec}[e+f x])^{3/2} \text{Sin}[e+f x] \left(-\text{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \text{Sec}[e+f x]^2\right]+\left(-\text{Tan}[e+f x]^2\right)^{1/4}\right)}{f \sqrt{b \text{Tan}[e+f x]} \left(-\text{Tan}[e+f x]^2\right)^{1/4}}$$

Problem 317: Result unnecessarily involves higher level functions.

$$\int \frac{(d \text{Sec}[e+f x])^{3/2}}{\sqrt{b \text{Tan}[e+f x]}}\, dx$$

Optimal (type 3, 131 leaves, 6 steps) :

$$\frac{d \text{ArcTan}\left[\frac{\sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}}\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}\, f \sqrt{b \text{Tan}[e+f x]}}+\frac{d \text{ArcTanh}\left[\frac{\sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}}\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{b \text{Sin}[e+f x]}}{\sqrt{b}\, f \sqrt{b \text{Tan}[e+f x]}}$$

Result (type 5, 66 leaves) :

$$-\frac{2 \text{Hypergeometric2F1}\left[\frac{3}{4}, \frac{3}{4}, \frac{7}{4}, \text{Sec}[e+f x]^2\right] (d \text{Sec}[e+f x])^{3/2} \sqrt{b \text{Tan}[e+f x]}}{3\, b\, f \left(-\text{Tan}[e+f x]^2\right)^{1/4}}$$

- **Problem 318: Result unnecessarily involves higher level functions.**

$$\int \frac{\sqrt{d \operatorname{Sec}[e+f x]}}{\sqrt{b \operatorname{Tan}[e+f x]}}\, dx$$

Optimal (type 4, 55 leaves, 3 steps):

$$\frac{2 \operatorname{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}{f \sqrt{b \operatorname{Tan}[e+f x]}}$$

Result (type 5, 64 leaves):

$$-\frac{2 \operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \operatorname{Sec}[e+f x]^2\right] \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}}{b f \left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}}$$

- **Problem 320: Result unnecessarily involves higher level functions.**

$$\int \frac{1}{(d \operatorname{Sec}[e+f x])^{3/2} \sqrt{b \operatorname{Tan}[e+f x]}}\, dx$$

Optimal (type 4, 95 leaves, 4 steps):

$$\frac{4 \operatorname{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}{3 d^2 f \sqrt{b \operatorname{Tan}[e+f x]}}+\frac{2 \sqrt{b \operatorname{Tan}[e+f x]}}{3 b f (d \operatorname{Sec}[e+f x])^{3/2}}$$

Result (type 5, 91 leaves):

$$\frac{2 \sqrt{b \operatorname{Tan}[e+f x]} \left(-2 \operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{5}{4}, \operatorname{Sec}[e+f x]^2\right] \operatorname{Sec}[e+f x]^2+\left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}\right)}{3 b f (d \operatorname{Sec}[e+f x])^{3/2} \left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}}$$

- **Problem 323: Result unnecessarily involves higher level functions.**

$$\int \frac{(d \operatorname{Sec}[e+f x])^{3/2}}{(b \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 4, 97 leaves, 4 steps):

$$-\frac{2 d^2}{b f \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{b \operatorname{Tan}[e+f x]}}-\frac{2 d^2 \operatorname{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f x\right), 2\right] \sqrt{b \operatorname{Tan}[e+f x]}}{b^2 f \sqrt{d \operatorname{Sec}[e+f x]} \sqrt{\operatorname{Sin}[e+f x]}}$$

Result (type 5, 70 leaves):

$$\frac{2 (d \operatorname{Sec}[e+f x])^{3/2} \left(-3+2 \operatorname{Hypergeometric2F1}\left[\frac{1}{4}, \frac{3}{4}, \frac{7}{4}, \operatorname{Sec}[e+f x]^2\right] \left(-\operatorname{Tan}[e+f x]^2\right)^{1/4}\right)}{3 b f \sqrt{b \operatorname{Tan}[e+f x]}}$$

Problem 325: Result unnecessarily involves higher level functions.

$$\int \frac{1}{\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 91 leaves, 4 steps):

$$-\frac{2}{b\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}-\frac{4\,\mathrm{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{b^2\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Sin}[e+f\,x]}}$$

Result (type 5, 88 leaves):

$$\frac{\mathrm{Sec}[e+f\,x]^2\left(-9+3\,\mathrm{Cos}[2\,(e+f\,x)]+8\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)}{3\,b\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}$$

Problem 327: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(d\,\mathrm{Sec}[e+f\,x])^{5/2}\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 4, 130 leaves, 5 steps):

$$-\frac{2}{b\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/2}\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}-\frac{24\,\mathrm{EllipticE}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{b\,\mathrm{Tan}[e+f\,x]}}{5\,b^2\,d^2\,f\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Sin}[e+f\,x]}}-\frac{12\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}{5\,b^3\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/2}}$$

Result (type 5, 91 leaves):

$$\frac{1}{20\,b\,d^4\,f\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}$$
$$(d\,\mathrm{Sec}[e+f\,x])^{3/2}\left(-69+28\,\mathrm{Cos}[2\,(e+f\,x)]+\mathrm{Cos}[4\,(e+f\,x)]+64\,\mathrm{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 328: Result unnecessarily involves higher level functions.

$$\int \frac{(d\,\mathrm{Sec}[e+f\,x])^{7/2}}{(b\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 172 leaves, 7 steps):

$$-\frac{2\,d^2\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}}{3\,b\,f\,(b\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{d^3\,\mathrm{ArcTan}\left[\frac{\sqrt{b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{b}}\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{b\,\mathrm{Sin}[e+f\,x]}}{b^{5/2}\,f\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}+\frac{d^3\,\mathrm{ArcTanh}\left[\frac{\sqrt{b\,\mathrm{Sin}[e+f\,x]}}{\sqrt{b}}\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{b\,\mathrm{Sin}[e+f\,x]}}{b^{5/2}\,f\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 5, 104 leaves):

$$-\left(2\,d^3\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}\left(\mathrm{Hypergeometric2F1}\left[\frac{3}{4},\frac{3}{4},\frac{7}{4},\mathrm{Sec}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]+\mathrm{Csc}[e+f\,x]\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)\right)\Big/$$
$$\left(3\,b^2\,f\,\sqrt{b\,\mathrm{Tan}[e+f\,x]}\,\left(-\mathrm{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 329: Result unnecessarily involves higher level functions.

$$\int \frac{(d\,\text{Sec}[e+f\,x])^{5/2}}{(b\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 101 leaves, 4 steps):

$$-\frac{2\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}}{3\,b\,f\,(b\,\text{Tan}[e+f\,x])^{3/2}}+\frac{2\,d^2\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{3\,b^2\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}$$

Result (type 5, 72 leaves):

$$\frac{2\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\left(-1+\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\text{Sec}[e+f\,x]^2\right]\left(-\text{Tan}[e+f\,x]^2\right)^{3/4}\right)}{3\,b\,f\,(b\,\text{Tan}[e+f\,x])^{3/2}}$$

Problem 331: Result unnecessarily involves higher level functions.

$$\int \frac{\sqrt{d\,\text{Sec}[e+f\,x]}}{(b\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 95 leaves, 4 steps):

$$-\frac{2\,\sqrt{d\,\text{Sec}[e+f\,x]}}{3\,b\,f\,(b\,\text{Tan}[e+f\,x])^{3/2}}-\frac{4\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{3\,b^2\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}$$

Result (type 5, 70 leaves):

$$-\frac{2\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\left(1+2\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\text{Sec}[e+f\,x]^2\right]\left(-\text{Tan}[e+f\,x]^2\right)^{3/4}\right)}{3\,b\,f\,(b\,\text{Tan}[e+f\,x])^{3/2}}$$

Problem 333: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(d\,\text{Sec}[e+f\,x])^{3/2}\,(b\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 4, 132 leaves, 5 steps):

$$-\frac{2}{3\,b\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(b\,\text{Tan}[e+f\,x])^{3/2}}-\frac{8\,\text{EllipticF}\left[\frac{1}{2}\left(e-\frac{\pi}{2}+f\,x\right),2\right]\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{\text{Sin}[e+f\,x]}}{3\,b^2\,d^2\,f\,\sqrt{b\,\text{Tan}[e+f\,x]}}-\frac{4\,\sqrt{b\,\text{Tan}[e+f\,x]}}{3\,b^3\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}$$

Result (type 5, 112 leaves):

$$\frac{1}{3\,b^3\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}\text{Csc}[e+f\,x]^2\,\sqrt{b\,\text{Tan}[e+f\,x]}\,\left(-\text{Tan}[e+f\,x]^2\right)^{3/4}$$
$$\left(-8\,\text{Hypergeometric2F1}\left[\frac{1}{4},\frac{3}{4},\frac{5}{4},\text{Sec}[e+f\,x]^2\right]+\left(-1+\text{Cos}[2\,(e+f\,x)]+2\,\text{Csc}[e+f\,x]^2\right)\left(-\text{Tan}[e+f\,x]^2\right)^{1/4}\right)$$

Problem 354: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f\,x]\,(b\,\text{Sec}[e+f\,x])^m\,dx$$

Optimal (type 5, 40 leaves, 2 steps):

$$-\frac{\text{Hypergeometric2F1}\left[1,\frac{m}{2},\frac{2+m}{2},\text{Sec}[e+f\,x]^2\right]\,(b\,\text{Sec}[e+f\,x])^m}{f\,m}$$

Result (type 6, 4909 leaves):

$$\Big(\text{Cot}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]^{-1+m}\,(b\,\text{Sec}[e+f\,x])^m$$

$$\Big(\Big((-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Cos}[e+f\,x]\Big)\Big/$$

$$\Big((-1+m)\,\Big(2\,(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}(e+f\,x)\Big]^2+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,1-m,1,3-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,-m,2,3-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Cos}[e+f\,x]\Big)\Big)-$$

$$\Big(8\,\text{AppellF1}\Big[1,m,1-m,2,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Csc}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}(e+f\,x)\Big]^6\Big)\Big/$$

$$\Big(2\,\text{AppellF1}\Big[1,m,1-m,2,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+\Big((-1+m)\,\text{AppellF1}\Big[2,m,2-m,3,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+m\,\text{AppellF1}\Big[2,1+m,1-m,3,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Big)\Big)\Big/$$

$$\Big(f\,\Big(-\text{Cot}\Big[\frac{1}{2}(e+f\,x)\Big]\,\text{Csc}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Sec}[e+f\,x]^m\,\Big(\Big((-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Cos}[e+f\,x]\Big)\Big/$$

$$\Big((-1+m)\,\Big(2\,(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}(e+f\,x)\Big]^2+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,1-m,1,3-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,-m,2,3-m,\frac{1}{2}\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Cos}[e+f\,x]\Big)\Big)-$$

$$\Big(8\,\text{AppellF1}\Big[1,m,1-m,2,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Csc}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}(e+f\,x)\Big]^6\Big)\Big/$$

$$\Big(2\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$\Big((-1+m)\,\text{AppellF1}\Big[2,\,m,\,2-m,\,3,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+m\,\text{AppellF1}\Big[2,\,1+m,\,1-m,\,3,$$

$$\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+m\,\text{Cot}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Sec}[e+f\,x]^{1+m}\,\text{Sin}[e+f\,x]$$

$$\Big(\Big(\Big((-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cos}[e+f\,x]\Big)\Big/$$

$$\Big((-1+m)\,\Big(2\,(-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Cos}[e+f\,x]\Big)\Big)-$$

$$\Big(8\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Csc}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]^6\Big)\Big/$$

$$\Big(2\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$\Big((-1+m)\,\text{AppellF1}\Big[2,\,m,\,2-m,\,3,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$m\,\text{AppellF1}\Big[2,\,1+m,\,1-m,\,3,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+\text{Cot}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Sec}[e+f\,x]^m$$

$$\Big(-\Big(\Big((-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sin}[e+f\,x]\Big)\Big/$$

$$\Big((-1+m)\,\Big(2\,(-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]$$

$$\text{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\Big(m\,\text{AppellF1}\Big[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,\text{Cos}[e+f\,x]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Cos}[e+f\,x]\Big)\Big)\Big)-$$

$$\Big(24\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]\,\text{Csc}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]^5\Big)\Big/$$

$$\Big(2\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+\Big((-1+m)\,\text{AppellF1}\Big[2,\,m,\,2-m,\,3,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+m\,\text{AppellF1}\Big[2,\,1+m,\,1-m,\,3,\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+$$

$$\left(16\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]^6\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \left((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) -$$

$$\left(8\,\text{Csc}[e+f x]^2\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]^6\left(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{2}m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \left((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left((-2+m)\,\text{Cos}[e+f x]\left(-\frac{1}{2-m}(1-m)\,m\,\text{AppellF1}\left[2-m, 1-m, 1, 3-m, \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-\frac{1}{2}\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Sin}[e+f x] + \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) +$$

$$\frac{1}{2-m}(1-m)\,\text{AppellF1}\left[2-m, -m, 2, 3-m, \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2, \text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\left.\left.\left.\left(-\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Sin}[e+f x] + \text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left((-1+m)\left(2(-2+m)\,\text{AppellF1}\left[1-m, -m, 1, 2-m, \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2, \text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 +\right.\right.$$

$$\left(m\,\text{AppellF1}\left[2-m, 1-m, 1, 3-m, \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2, \text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right] -\right.$$

$$\left.\left.\left.2\,\text{AppellF1}\left[2-m, -m, 2, 3-m, \frac{1}{2}\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2, \text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Cos}[e+f x]\right)\right) +$$

$$\left(8\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Csc}[e+f x]^2\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]^6\right.$$

$$\left(\left((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.\right.$$

$$\left.m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$2\left(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right] +\right.$$

$$\frac{1}{2} m \, \text{AppellF1}\Big[2,\, 1+m,\, 1-m,\, 3,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big) + \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2$$

$$\Big((-1+m) \Big(-\frac{2}{3}(2-m) \, \text{AppellF1}\Big[3,\, m,\, 3-m,\, 4,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big] +$$

$$\frac{2}{3} m \, \text{AppellF1}\Big[3,\, 1+m,\, 2-m,\, 4,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big) +$$

$$m \Big(-\frac{2}{3}(1-m) \, \text{AppellF1}\Big[3,\, 1+m,\, 2-m,\, 4,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big] +$$

$$\frac{2}{3}(1+m) \, \text{AppellF1}\Big[3,\, 2+m,\, 1-m,\, 4,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big)\Big)\Big)\Big) \Big/$$

$$\Big(2 \, \text{AppellF1}\Big[1,\, m,\, 1-m,\, 2,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] + \Big((-1+m) \, \text{AppellF1}\Big[2,\, m,\, 2-m,\, 3,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] + m \, \text{AppellF1}\Big[2,\, 1+m,\, 1-m,\, 3,\, \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\, -\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big) \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^2 -$$

$$\Big((-2+m) \, \text{AppellF1}\Big[1-m,\, -m,\, 1,\, 2-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Cos}[e+f x]$$

$$\Big(-2(-2+m) \, \text{AppellF1}\Big[1-m,\, -m,\, 1,\, 2-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \text{Cos}\Big[\frac{1}{2}(e+f x)\Big]$$

$$\text{Sin}\Big[\frac{1}{2}(e+f x)\Big] - \Big(m \, \text{AppellF1}\Big[2-m,\, 1-m,\, 1,\, 3-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] -$$

$$2 \, \text{AppellF1}\Big[2-m,\, -m,\, 2,\, 3-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big) \text{Sin}[e+f x] +$$

$$2(-2+m) \, \text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^2 \Big(-\frac{1}{2-m}(1-m) \, m \, \text{AppellF1}\Big[2-m,\, 1-m,\, 1,\, 3-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$\text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \Big(-\frac{1}{2} \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Sin}[e+f x] + \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big) +$$

$$\frac{1}{2-m}(1-m) \, \text{AppellF1}\Big[2-m,\, -m,\, 2,\, 3-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\Big(-\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Sin}[e+f x] + \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big) +$$

$$\text{Cos}[e+f x] \Big(m \Big(\frac{1}{3-m}(1-m)(2-m) \, \text{AppellF1}\Big[3-m,\, 2-m,\, 1,\, 4-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$\text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big] \Big(-\frac{1}{2} \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Sin}[e+f x] + \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2 \text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big) +$$

$$\frac{1}{3-m}(2-m) \, \text{AppellF1}\Big[3-m,\, 1-m,\, 2,\, 4-m,\, \frac{1}{2} \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2,\, \text{Cos}[e+f x] \, \text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\left(-\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Sin}[e+f x]+\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Bigg)\Bigg)-$$
$$2\left(-\frac{1}{3-m}(2-m)\,m\,\mathrm{AppellF1}\left[3-m,1-m,2,4-m,\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$
$$\left(-\frac{1}{2}\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Sin}[e+f x]+\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+\frac{1}{3-m}$$
$$2(2-m)\,\mathrm{AppellF1}\left[3-m,-m,3,4-m,\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\left.\left(-\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Sin}[e+f x]+\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg((-1+m)\left(2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$
$$\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^2+\left(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$
$$\left.\left.2\,\mathrm{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Cos}[e+f x]\right)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 355: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f x]^3\,(b\,\mathrm{Sec}[e+f x])^m\,dx$$

Optimal (type 5, 39 leaves, 2 steps):

$$\frac{\mathrm{Hypergeometric2F1}\left[2,\frac{m}{2},\frac{2+m}{2},\mathrm{Sec}[e+f x]^2\right](b\,\mathrm{Sec}[e+f x])^m}{f\,m}$$

Result (type 6, 8760 leaves):

$$-\Bigg(\Bigg(\mathrm{Cot}[e+f x]^3\,(b\,\mathrm{Sec}[e+f x])^m\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{3+m}$$
$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(-\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right/$$
$$\left(m\left(\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)+2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)+$$
$$\left(8\,\mathrm{AppellF1}\left[1,m,1-m,2,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg/\left(\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.$$

$$\left(2\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + \left((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right) -$$

$$\left(\text{AppellF1}\left[1, m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1, m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + m\left(\text{AppellF1}\left[2, m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] +\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2, 1+m, -m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right) -$$

$$\left(4\,(-2+m)\,\text{AppellF1}\left[1-m, -m, 1, 2-m, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right), 1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big/$$

$$\left((-1+m)\left(-2\,(-2+m)\,\text{AppellF1}\left[1-m, -m, 1, 2-m, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right), 1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] +\right.\right.$$

$$\left(m\,\text{AppellF1}\left[2-m, 1-m, 1, 3-m, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right), 1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] - 2\right.$$

$$\left.\left.\left.\text{AppellF1}\left[2-m, -m, 2, 3-m, \frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right), 1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\right)\Bigg/$$

$$\left(4\,f\left(-\frac{1}{4}m\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{3+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{-1+m}\right.\right.$$

$$\left(-\text{AppellF1}\left[1, m, -m, 2, \text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Big/\right.$$

$$\left(m\left(\text{AppellF1}\left[2, m, 1-m, 3, \text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + \text{AppellF1}\left[2, 1+m, -m, 3, \text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right) + 2\,\text{AppellF1}\left[1, m, -m, 2, \text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right) +$$

$$\left(8\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right.$$

$$\left(2\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + \left((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right] + m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right) -$$

$$\left(\text{AppellF1}\left[1, m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$
$$\left(4(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right.$$
$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\Big/\left((-1+m)\left(-2(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$\left(m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.$$
$$\left.\left.\left.2\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\right)\right)-$$
$$\frac{3}{4}\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{3+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$
$$\left(-\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\right.$$
$$\left(m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[2,1+m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)+2\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$
$$\left(8\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right.$$
$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$
$$\left(\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$
$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$
$$\left(4(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right.$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big) \Big/ \Big((-1+m)\Big(-2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\,\mathrm{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big)\Big)\Big)-$$

$$\frac{1}{4}(3+m)\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m$$

$$\Big(-\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\Big(m\Big(\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\Big[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)+2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)+$$

$$\Big(8\,\mathrm{AppellF1}\left[1,m,1-m,2,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big/\Big(\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\Big(2\,\mathrm{AppellF1}\left[1,m,1-m,2,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Big((-1+m)\,\mathrm{AppellF1}\Big[2,m,2-m,3,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+m\,\mathrm{AppellF1}\left[2,1+m,1-m,3,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)-$$

$$\Big(\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big/$$

$$\Big(2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\Big(\mathrm{AppellF1}\Big[2,m,1-m,3,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)-$$

$$\Big(4(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big)\Big/\Big((-1+m)\Big(-2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\,\mathrm{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big)\Big)\Big)-$$

$$\frac{1}{4}\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{3+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m$$

$$\Bigg(-\Bigg(-\frac{1}{2}\,m\,\text{AppellF1}\left[2,m,1-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2-$$

$$\frac{1}{2}\,m\,\text{AppellF1}\left[2,1+m,-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Big/$$

$$\Bigg(m\Bigg(\text{AppellF1}\left[2,m,1-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\Bigg[2,1+m,-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]\Bigg)+2\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-$$

$$\left(8\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3\right)\Big/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2$$

$$\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Bigg((-1+m)\,\text{AppellF1}\Bigg[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\left(8\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Big/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Bigg((-1+m)\,\text{AppellF1}\Bigg[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(8\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\Bigg[$$

$$\frac{1}{2}(e+f x)\Bigg]+\frac{1}{2}\,m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Big/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\left(\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Big/$$

$$\Big(2\,\text{AppellF1}[1, m, -m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + m\,\Big(\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[2, 1+m, -m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big) -$$

$$\Big(\text{Tan}[\tfrac{1}{2}(e+f x)]^2\,\Big(\tfrac{1}{2}\,m\,\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)] +$$

$$\tfrac{1}{2}\,m\,\text{AppellF1}[2, 1+m, -m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)]\Big)\Big)\Big/$$

$$\Big(2\,\text{AppellF1}[1, m, -m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + m\,\Big(\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[2, 1+m, -m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big) +$$

$$\Big(\text{AppellF1}[1, m, -m, 2, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\Big(m\,\Big(\tfrac{2}{3}\,(1-m)\,\text{AppellF1}[3, m, 2-m, 4,$$

$$\text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]\,\text{Csc}[\tfrac{1}{2}(e+f x)]^2 -$$

$$\tfrac{4}{3}\,m\,\text{AppellF1}[3, 1+m, 1-m, 4, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]\,\text{Csc}[\tfrac{1}{2}(e+f x)]^2 -$$

$$\tfrac{2}{3}\,(1+m)\,\text{AppellF1}[3, 2+m, -m, 4, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]\,\text{Csc}[\tfrac{1}{2}(e+f x)]^2\Big) + 2$$

$$\text{AppellF1}[1, m, -m, 2, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)] + 2$$

$$\Big(-\tfrac{1}{2}\,m\,\text{AppellF1}[2, m, 1-m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]\,\text{Csc}[\tfrac{1}{2}(e+f x)]^2 - \tfrac{1}{2}\,m\,\text{AppellF1}[$$

$$2, 1+m, -m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]\,\text{Csc}[\tfrac{1}{2}(e+f x)]^2\Big)\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big)\Big)\Big/$$

$$\Big(m\,\Big(\text{AppellF1}[2, m, 1-m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[2, 1+m, -m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\Big) + 2\,\text{AppellF1}[1, m, -m, 2, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big)^2 +$$

$$\Big(\text{AppellF1}[1, m, -m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\,\Big(m\,\Big(\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[2, 1+m, -m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\Big)\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[$$

$$\tfrac{1}{2}(e+f x)] + 2\,\Big(\tfrac{1}{2}\,m\,\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Sec}[\tfrac{1}{2}(e+f x)]^2\,\text{Tan}[\tfrac{1}{2}(e+f x)] + \tfrac{1}{2}\,m$$

$$\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]\Big)\Big)+m\,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2$$

$$\Big(-\tfrac{2}{3}(1-m)\,\text{AppellF1}\left[3,m,2-m,4,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]+$$

$$\tfrac{4}{3}m\,\text{AppellF1}\left[3,1+m,1-m,4,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]+$$

$$\tfrac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,-m,4,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]+m\,\Big(\text{AppellF1}\Big[2,m,1-m,3,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]+\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\right]\Big)\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big)^2-$$

$$\Big(4(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\text{Csc}\left[\tfrac{1}{2}(e+f x)\right]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]\Big)\Big/$$

$$\Big((-1+m)\,\Big(-2(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,1-m,1,3-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,-m,2,3-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\Big)\Big(-1+\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big)\Big)\Big)+$$

$$\Big(4(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\text{Cot}\left[\tfrac{1}{2}(e+f x)\right]$$

$$\text{Csc}\left[\tfrac{1}{2}(e+f x)\right]^2\Big(-1+\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big)\Big)\Big/\Big((-1+m)\,\Big(-2(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),$$

$$1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]+\Big(m\,\text{AppellF1}\Big[2-m,1-m,1,3-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,-m,2,3-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\Big)\Big(-1+\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big)\Big)\Big)-$$

$$\Big(4(-2+m)\,\text{Cot}\left[\tfrac{1}{2}(e+f x)\right]^2\Big(\frac{1}{2(2-m)}(1-m)\,m\,\text{AppellF1}\Big[2-m,1-m,1,3-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),$$

$$1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]-\frac{1}{2-m}(1-m)\,\text{AppellF1}\Big[2-m,-m,2,3-m,$$

$$\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\tfrac{1}{2}(e+f x)\right]^2\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]\Big)\Big(-1+\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big)\Big)\Big/$$

$$\Big((-1+m)\,\Big(-2(-2+m)\,\text{AppellF1}\Big[1-m,-m,1,2-m,\tfrac{1}{2}\Big(1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big),1-\text{Tan}\left[\tfrac{1}{2}(e+f x)\right]^2\Big]+$$

$$\left(m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$\left.\left.2\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)-$$

$$\left(8\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left(\left(\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.\right.$$

$$\left.m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+2$$

$$\left(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{2}m\right.$$

$$\left.\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left((-1+m)\left(-\frac{2}{3}(2-m)\,\text{AppellF1}\left[3,m,3-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$m\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\left.\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left(\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.\right.$$

$$\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)+$$

$$\left(4(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(\left(m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.$$

$$\left.2\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]-2$$

$$(-2+m)\left(\frac{1}{2(2-m)}(1-m)\,m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]-\frac{1}{2-m}(1-m)\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)+\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$
$$\Bigg(m\Bigg(-\frac{1}{3-m}(2-m)\,\text{AppellF1}\left[3-m,1-m,2,4-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]-\frac{1}{2(3-m)}(1-m)(2-m)\,\text{AppellF1}\left[3-m,2-m,1,4-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),\right.$$
$$\left.1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)-2\Bigg(\frac{1}{2(3-m)}(2-m)\,m\,\text{AppellF1}\Big[3-m,1-m,2,4-m,$$
$$\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]-\frac{1}{3-m}2(2-m)\,\text{AppellF1}\Big[$$
$$3-m,-m,3,4-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg((-1+m)\Bigg(-2(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$\Bigg(m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$
$$2\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 356: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^5\,(b\,\text{Sec}[e+f x])^m\,dx$$

Optimal (type 5, 40 leaves, 2 steps):

$$-\frac{\text{Hypergeometric2F1}\left[3,\frac{m}{2},\frac{2+m}{2},\text{Sec}[e+f x]^2\right](b\,\text{Sec}[e+f x])^m}{f\,m}$$

Result (type 6, 13654 leaves):

$$\Bigg(\text{Cot}[e+f x]^5\,(b\,\text{Sec}[e+f x])^m$$
$$\Bigg(-\Bigg(6\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5$$

$$\left(1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^m\Big) \Big/ \Big(m \Big(\text{AppellF1}[2, m, 1-m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[2, 1+m, -m, 3,$$

$$\text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\Big) + 2\,\text{AppellF1}[1, m, -m, 2, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big) +$$

$$\Big(3\,\text{AppellF1}[2, m, -m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Cot}[\tfrac{1}{2}(e+f x)]^2 \left(\frac{1}{1-\text{Tan}[\frac{1}{2}(e+f x)]^2}\right)^{5+m}$$

$$\left(-1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^5 \left(1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^m\Big) \Big/$$

$$\Big(4 \Big(m \Big(\text{AppellF1}[3, m, 1-m, 4, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2] + \text{AppellF1}[3, 1+m, -m, 4, \text{Cot}[\tfrac{1}{2}(e+f x)]^2,$$

$$-\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\Big) + 3\,\text{AppellF1}[2, m, -m, 3, \text{Cot}[\tfrac{1}{2}(e+f x)]^2, -\text{Cot}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big)\Big) +$$

$$\Big(32\,\text{AppellF1}[1, m, 1-m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2 \left(\frac{1}{1-\text{Tan}[\frac{1}{2}(e+f x)]^2}\right)^{5+m}$$

$$\left(-1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^5 \left(1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^{-1+m}\Big) \Big/ \Big(2\,\text{AppellF1}[1, m, 1-m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] +$$

$$\Big((-1+m)\,\text{AppellF1}[2, m, 2-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] +$$

$$m\,\text{AppellF1}[2, 1+m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big) -$$

$$\Big(6\,\text{AppellF1}[1, m, -m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2 \left(\frac{1}{1-\text{Tan}[\frac{1}{2}(e+f x)]^2}\right)^{5+m}$$

$$\left(-1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^5 \left(1+\text{Tan}[\tfrac{1}{2}(e+f x)]^2\right)^m\Big) \Big/$$

$$\Big(2\,\text{AppellF1}[1, m, -m, 2, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] + m \Big(\text{AppellF1}[2, m, 1-m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2] +$$

$$\text{AppellF1}[2, 1+m, -m, 3, \text{Tan}[\tfrac{1}{2}(e+f x)]^2, -\text{Tan}[\tfrac{1}{2}(e+f x)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+f x)]^2\Big) +$$

$$\left(3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^4\,\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{5+m}\right.$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^5\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(4\,\left(3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\,\left(\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.\right.$$

$$\left.\left.\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(16\,(-2+m)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\left(1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right),\,1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{4+m}\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^5\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left((1-m)\,\left(-2\,(-2+m)\,\text{AppellF1}\left[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\,\left(1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right),\,1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\left(m\,\text{AppellF1}\left[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\,\left(1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right),\,1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.$$

$$\left.\left.\left.\left.2\,\text{AppellF1}\left[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\,\left(1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right),\,1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)\right)\right)\Big/$$

$$\left(f\,\left(-\left(6\,m\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right.\right.\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{5+m}\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^5\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(m\,\left(\text{AppellF1}\left[2,\,m,\,1-m,\,3,\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[2,\,1+m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)+2\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-$$

$$\left(30\,\text{AppellF1}\left[1,\,m,\,-m,\,2,\,\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right.$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(m\left(\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)+$$

$$2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-$$

$$\Bigg(6\left(-\frac{1}{2}m\,\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^2-\right.$$

$$\left.\frac{1}{2}m\,\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(m\left(\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)+$$

$$2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-$$

$$\Bigg(6(5+m)\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{6+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(m\left(\mathrm{AppellF1}\left[2,m,1-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[2,1+m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)+$$

$$2\,\mathrm{AppellF1}\left[1,m,-m,2,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)+$$

$$\Bigg(3m\,\mathrm{AppellF1}\left[2,m,-m,3,\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$

$$\left(15\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Csc}\left[\frac{1}{2}(e+f\,x)\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)-$$

$$\left(3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\text{Csc}\left[\frac{1}{2}(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-\frac{2}{3}\,m\,\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\text{Csc}\left[\frac{1}{2}(e+f\,x)\right]^2-\right.\right.$$

$$\left.\frac{2}{3}\,m\,\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\text{Csc}\left[\frac{1}{2}(e+f\,x)\right]^2\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,\,m,\,1-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\text{AppellF1}\left[3,\,1+m,\,-m,\,4,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,\,m,\,-m,\,3,\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,(5+m)\,\text{AppellF1}\left[2,m,-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Csc}\left[\frac{1}{2}(e+f x)\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{6+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[3,1+m,-m,4,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,m,-m,3,\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(32\,(-1+m)\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-2+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(160\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(32\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left(32\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left(32\,(5+m)\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{6+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$

$$\left(6\,m\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$

$$\left(30\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$

$$\left(6\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$

$$\left(6\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(\frac{1}{2}m\,\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$

$$\left(6\,(5+m)\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right.$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{6+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)+$$

$$\Bigg(3\,m\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^5$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg(4\Bigg(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(15\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^5$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(4\Bigg(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(2\Bigg(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)+$$

$$\Big(3\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^4\Big(\frac{2}{3}m\,\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\Big)\Big/$$

$$\Big(4\Big(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\Big(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)+$$

$$\Big(3(5+m)\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]^5$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{6+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\Big)\Big/$$

$$\Big(4\Big(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\Big(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)+$$

$$\Big(6\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\Big(m\Big(\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,m,2-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]$$

$$\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-\frac{4}{3}m\,\text{AppellF1}\left[3,1+m,1-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-$$

$$\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2\Big)+$$

$$2\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$2\left(-\frac{1}{2}m\,\text{AppellF1}\left[2,m,1-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-\right.$$

$$\left.\left.\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$

$$\left(m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[2,1+m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)+\right.$$

$$\left.2\,\text{AppellF1}\left[1,m,-m,2,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2-$$

$$\left(3\,\text{AppellF1}\left[2,m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\left(m\left(\frac{3}{4}(1-m)\,\text{AppellF1}\left[4,m,2-m,5,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\right.\right.$$

$$\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-\frac{3}{2}m\,\text{AppellF1}\left[4,1+m,1-m,5,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-$$

$$\left.\frac{3}{4}(1+m)\,\text{AppellF1}\left[4,2+m,-m,5,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$3\,\text{AppellF1}\left[2,m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$3\left(-\frac{2}{3}m\,\text{AppellF1}\left[3,m,1-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2-\right.$$

$$\left.\left.\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$

$$\left(4\left(m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[3,1+m,-m,4,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)+3\,\text{AppellF1}\left[2,m,-m,3,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)+$$

$$\left(6\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\right.$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\left(m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$2\left(\frac{1}{2}\,m\,\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.\frac{1}{2}\,m\,\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$m\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{4}{3}\,m\,\text{AppellF1}\left[3,1+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\left.\left.\left.\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\Big/$$
$$\left(2\,\text{AppellF1}\left[1,m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[2,m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\left.\left.\text{AppellF1}\left[2,1+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2-$$
$$\left(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^4\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{5+m}\right.$$
$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\left.\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$3\left(\frac{2}{3}\,m\,\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.\frac{2}{3}\,m\,\text{AppellF1}\left[3,1+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$m\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{3}{4}(1-m)\,\text{AppellF1}\left[4,m,2-m,5,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{3}{2}\,m\,\text{AppellF1}\left[4,1+m,1-m,5,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\left.\left.\left.\frac{3}{4}(1+m)\,\text{AppellF1}\left[4,2+m,-m,5,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\Big/$$
$$\left(4\left(3\,\text{AppellF1}\left[2,m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\left(\text{AppellF1}\left[3,m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+\mathrm{AppellF1}\left[3,1+m,-m,4,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)-$$

$$\Bigg(16(-2+m)\,m\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg((1-m)\Bigg(-2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\,\mathrm{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg)-$$

$$\Bigg(80(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{m}\Bigg)\Big/$$

$$\Bigg((1-m)\Bigg(-2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\,\mathrm{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg)+$$

$$\Bigg(16(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]$$

$$\mathrm{Csc}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{m}\Bigg)\Big/$$

$$\Bigg((1-m)\Bigg(-2(-2+m)\,\mathrm{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\mathrm{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)\Big)-$$

$$\Big(16\,(-2+m)\,\text{Cot}\Big[\frac{1}{2}(e+f x)\Big]^2\,\Big(\frac{1}{2\,(2-m)}(1-m)\,m\,\text{AppellF1}\Big[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]-\frac{1}{2-m}(1-m)\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\,\Big(\frac{1}{1-\text{Tan}\big[\frac{1}{2}(e+f x)\big]^2}\Big)^{4+m}\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^5\,\Big(1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^m\Big)\Big/$$

$$\Big((1-m)\,\Big(-2\,(-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)\Big)-$$

$$\Big(16\,(-2+m)\,(4+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Csc}\Big[\frac{1}{2}(e+f x)\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]\,\Big(\frac{1}{1-\text{Tan}\big[\frac{1}{2}(e+f x)\big]^2}\Big)^{5+m}\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^5\,\Big(1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^m\Big)\Big/$$

$$\Big((1-m)\,\Big(-2\,(-2+m)\,\text{AppellF1}\Big[1-m,\,-m,\,1,\,2-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$\Big(m\,\text{AppellF1}\Big[2-m,\,1-m,\,1,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$

$$2\,\text{AppellF1}\Big[2-m,\,-m,\,2,\,3-m,\,\frac{1}{2}\Big(1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big),\,1-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)\Big)-$$

$$\Big(32\,\text{AppellF1}\Big[1,\,m,\,1-m,\,2,\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\,\Big(\frac{1}{1-\text{Tan}\big[\frac{1}{2}(e+f x)\big]^2}\Big)^{5+m}$$

$$\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^5\,\Big(1+\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^{-1+m}\,\Big(\Big((-1+m)\,\text{AppellF1}\Big[2,\,m,\,2-m,\,3,\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$m\,\text{AppellF1}\Big[2,\,1+m,\,1-m,\,3,\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+$$

$$2\left(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$

$$\left.\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left((-1+m)\left(-\frac{2}{3}(2-m)\,\text{AppellF1}\left[3,m,3-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$m\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$

$$\left.\left.\left.\left.\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2+$$

$$\left(16(-2+m)\,\text{AppellF1}\left[1-m,-m,1,2-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right.$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{4+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^5\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$

$$\left(\left(m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\right.\right.\right.$$

$$\left.\left.\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]-2(-2+m)\left(\frac{1}{2(2-m)}\right.$$

$$(1-m)\,m\,\text{AppellF1}\left[2-m,1-m,1,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]-$$

$$\left.\frac{1}{2-m}(1-m)\,\text{AppellF1}\left[2-m,-m,2,3-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(m\left(-\frac{1}{3-m}(2-m)\,\text{AppellF1}\left[3-m,1-m,2,4-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]-\frac{1}{2(3-m)}(1-m)(2-m)\,\text{AppellF1}\left[3-m,2-m,1,4-m,\frac{1}{2}\left(1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right),\right.$$

$$1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)-2\Big(\frac{1}{2(3-m)}(2-m)\,m\,\mathrm{AppellF1}\Big[3-m,1-m,2,4-m,\frac{1}{2}\Big(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]-\frac{1}{3-m}2(2-m)\,\mathrm{AppellF1}\Big[3-m,-m,3,4-m,\frac{1}{2}\Big(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\Big)\Big/$$

$$\Big((1-m)\Big(-2(-2+m)\,\mathrm{AppellF1}\Big[1-m,-m,1,2-m,\frac{1}{2}\Big(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+\Big(m\,\mathrm{AppellF1}\Big[2-m,1-m,1,3-m,\frac{1}{2}\Big(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]-2\,\mathrm{AppellF1}\Big[2-m,-m,2,3-m,\frac{1}{2}\Big(1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big),1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\Big(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)^2\Big)\Big)$$

- **Problem 357: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(b\,\mathrm{Sec}[e+f x])^m\,\mathrm{Tan}[e+f x]^4\,dx$$

Optimal (type 5, 63 leaves, 1 step):

$$\frac{\left(\mathrm{Cos}[e+f x]^2\right)^{\frac{5+m}{2}}\mathrm{Hypergeometric2F1}\left[\frac{5}{2},\frac{5+m}{2},\frac{7}{2},\mathrm{Sin}[e+f x]^2\right](b\,\mathrm{Sec}[e+f x])^m\,\mathrm{Tan}[e+f x]^5}{5 f}$$

Result (type 6, 12 350 leaves):

$$\Big((b\,\mathrm{Sec}[e+f x])^m\Big(\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-4+m}\Big(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^{-1+m}\Big)\Big/\Big(16\Big(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^4$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+2\Big((-1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},m,2-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+m\,\mathrm{AppellF1}\Big[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)+$$

$$\Big(\mathrm{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m}\Big(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^m\Big)\Big/$$

$$\left(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.(1+m)\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$
$$\left(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/$$
$$\left(8\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$
$$\left(3\,\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{-1+m}\right.$$
$$\left.\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/\left(4\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.(3+m)\,\mathrm{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$
$$\left(\mathrm{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^m\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\right)\Big/$$
$$\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.\left.(4+m)\,\mathrm{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\right)\mathrm{Tan}[e+fx]^4\right)\Big/$$

$$\left(f\left(\left(3\,(-1+m)\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.\right.\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-4+m}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-2+m}\right)\Big/$$

$$\left(16\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^4\,\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-4+m}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(4\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^5\,\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-4+m}\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/\,\left(32\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^4\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{1}{3}(1-m)\,\mathrm{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{1}{3}m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-4+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/\left(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\right.$$

$$\left(3\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(3(-4+m)\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(3\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(m\,\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(1+m)\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\left(\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right) \Big/$$

$$\left(4\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5 \left(\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + (1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\left(\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right) \Big/$$

$$\left(32\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4 \left(\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + (1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\left(\text{Tan}\left[\frac{1}{2}(e+f x)\right] \left(\frac{1}{3} m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3}(1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right) \Big/ \left(16\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\right.$$

$$\left.\left(\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + (1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\left((-3+m)\,\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\Bigg(\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(1+m)\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(m\,\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Bigg/$$

$$\Bigg(8\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\Bigg(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\Bigg(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\left(16\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\left.(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$
$$\left(\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{3}m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$
$$\left.\frac{1}{3}(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$
$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/\left(8\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\right.$$
$$\left(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$
$$\left((-2+m)\,\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$
$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/$$
$$\left(8\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\left.(2+m)\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$
$$\left(3m\,\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$
$$\left.\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\Bigg(4\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\Bigg(\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(3+m)\,\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\Bigg(\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(3+m)\,\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(8\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\Bigg(\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(3+m)\,\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(3\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{3}(3+m)\,\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/\left(4\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\right.$$

$$\left(\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(3+m)\,\mathrm{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\Bigg(3(-1+m)\,\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\left(4\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(3+m)\,\mathrm{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\Bigg(m\,\mathrm{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Bigg/$$

$$\left(2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\mathrm{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\mathrm{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(4+m)\,\mathrm{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\Bigg(2\,\mathrm{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{m}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^5\left(\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(4+m)\,\text{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/$$

$$\left(4\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(4+m)\,\text{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{1}{3}(4+m)\,\text{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\right.$$

$$\left(\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(4+m)\,\text{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(m\,\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{1+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Big/$$

$$\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\text{AppellF1}\left[\frac{1}{2},4+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},4+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.(4+m)\,\text{AppellF1}\left[\frac{3}{2},5+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-4+m}\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\left(2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\left.m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$3\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\left((-1+m)\left(-\frac{3}{5}(2-m)\,\text{AppellF1}\left[\frac{5}{2},m,3-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$
$$\left.\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.\left.\left.\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$
$$\left(16\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)-$$
$$\left(\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-3+m}\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\frac{1}{3}(1+m)\,\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\right.$$
$$\left.\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$
$$\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$
$$(1+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\left.\left.\left.\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$
$$\left(16\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$
$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)-$$
$$\left(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\right.$$
$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$
$$\frac{1}{3}(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)\right.$$
$$\left.\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},2+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$
$$\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$(2+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\frac{3}{5}(3+m)\,\text{AppellF1}\left[\frac{5}{2},4+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left(8\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)+$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\frac{1}{3}(3+m)\,\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(3+m)\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2},4+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},3+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{3}{5}(3+m)\,\text{AppellF1}\left[\frac{5}{2},4+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$(3+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},4+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\frac{3}{5}(4+m)\,\text{AppellF1}\left[\frac{5}{2},5+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left(4\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(\text{AppellF1}\left[\frac{1}{2},3+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},3+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(3+m)\right.$$

$$\text{AppellF1}\left[\frac{3}{2}, 4+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big) -$$

$$\Bigg(\text{AppellF1}\left[\frac{1}{2}, 4+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Tan}\left[\frac{1}{2}(e+f x)\right] \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m \Bigg(\frac{1}{3} m\, \text{AppellF1}\left[\frac{3}{2}, 4+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$\frac{1}{3}(4+m)\, \text{AppellF1}\left[\frac{3}{2}, 5+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$\frac{2}{3}\Bigg(m\, \text{AppellF1}\left[\frac{3}{2}, 4+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + (4+m)$$

$$\text{AppellF1}\left[\frac{3}{2}, 5+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{2}{3} \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\Bigg(m\left(-\frac{3}{5}(1-m)\, \text{AppellF1}\left[\frac{5}{2}, 4+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] +\right.$$

$$\left.\frac{3}{5}(4+m)\, \text{AppellF1}\left[\frac{5}{2}, 5+m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) +$$

$$(4+m)\left(\frac{3}{5} m\, \text{AppellF1}\left[\frac{5}{2}, 5+m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] +\right.$$

$$\left.\frac{3}{5}(5+m)\, \text{AppellF1}\left[\frac{5}{2}, 6+m, -m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg) \Bigg/$$

$$\Bigg(2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4 \Bigg(\text{AppellF1}\left[\frac{1}{2}, 4+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$\frac{2}{3}\Bigg(m\, \text{AppellF1}\left[\frac{3}{2}, 4+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + (4+m)$$

$$\text{AppellF1}\left[\frac{3}{2}, 5+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)\Bigg)$$

- **Problem 358: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (b\, \text{Sec}[e+f x])^m\, \text{Tan}[e+f x]^2\, dx$$

Optimal (type 5, 63 leaves, 1 step):

$$\frac{\left(\text{Cos}[e+f x]^2\right)^{\frac{3+m}{2}}\, \text{Hypergeometric2F1}\left[\frac{3}{2}, \frac{3+m}{2}, \frac{5}{2}, \text{Sin}[e+f x]^2\right] (b\, \text{Sec}[e+f x])^m\, \text{Tan}[e+f x]^3}{3 f}$$

Result (type 6, 6726 leaves) :

$$\Bigg(2\,(b\,\mathrm{Sec}[e+f\,x])^m\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\,\left(\frac{1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2}{1-\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2}\right)^m$$

$$\Bigg(-\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)\Big/\,\Big(\Big(1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,\Big((-1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+m\,\mathrm{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)\Big/$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(m\,\mathrm{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,2+m,\,-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+$$

$$\Big(2\,\mathrm{AppellF1}\Big[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\Big/\,\Big(\mathrm{AppellF1}\Big[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+\frac{2}{3}\,\Big(m\,\mathrm{AppellF1}\Big[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$(2+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)\,\mathrm{Tan}[e+f\,x]^2\Bigg)\Bigg/$$

$$\Bigg(f\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\,\Bigg(-\frac{1}{\Big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\Big)^3}\,4\,\mathrm{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\left(\frac{1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2}{1-\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2}\right)^m$$

$$\Bigg(-\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)\Big/\,\Big(\Big(1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,\Big((-1+m)\,\mathrm{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+m\,\mathrm{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$\Big(3\,\mathrm{AppellF1}\Big[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\frac{1}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\left(-\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\frac{1}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,2\,m\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\right.$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

$$\left(-\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/ \left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(2\,\text{AppellF1}\left[\frac{1}{2}, 2+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/ \left(\text{AppellF1}\left[\frac{1}{2}, 2+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2}, 2+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2}, 3+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\frac{1}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\left(\left(\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/ \left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\left(6\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \Big/$$

$$\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\,\Big((-1+m)\,\text{AppellF1}[\tfrac{3}{2},m,2-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+$$

$$m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+fx)]^2\Big)\Big)-$$

$$\Big(3\,\Big(-\tfrac{1}{3}(1-m)\,\text{AppellF1}[\tfrac{3}{2},m,2-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]+$$

$$\tfrac{1}{3}m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]\Big)$$

$$\big(-1+\text{Tan}[\tfrac{1}{2}(e+fx)]^2\big)^2\Big)\Big/\Big(\big(1+\text{Tan}[\tfrac{1}{2}(e+fx)]^2\big)\,\Big(3\,\text{AppellF1}[\tfrac{1}{2},m,1-m,\tfrac{3}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+$$

$$2\,\Big((-1+m)\,\text{AppellF1}[\tfrac{3}{2},m,2-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+$$

$$m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+fx)]^2\Big)\Big)+$$

$$\Big(3\,\text{AppellF1}[\tfrac{1}{2},1+m,-m,\tfrac{3}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]\Big)\Big/$$

$$\Big(3\,\text{AppellF1}[\tfrac{1}{2},1+m,-m,\tfrac{3}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+2\,\Big(m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+(1+m)\,\text{AppellF1}[\tfrac{3}{2},2+m,-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+fx)]^2\Big)+$$

$$\Big(3\,\Big(\tfrac{1}{3}m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]+\tfrac{1}{3}(1+m)\,\text{AppellF1}[$$

$$\tfrac{3}{2},2+m,-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]\Big)\,\big(-1+\text{Tan}[\tfrac{1}{2}(e+fx)]^2\big)\Big)\Big/$$

$$\Big(3\,\text{AppellF1}[\tfrac{1}{2},1+m,-m,\tfrac{3}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+2\,\Big(m\,\text{AppellF1}[\tfrac{3}{2},1+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+(1+m)\,\text{AppellF1}[\tfrac{3}{2},2+m,-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+fx)]^2\Big)+$$

$$\Big(2\,\Big(\tfrac{1}{3}m\,\text{AppellF1}[\tfrac{3}{2},2+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]+$$

$$\tfrac{1}{3}(2+m)\,\text{AppellF1}[\tfrac{3}{2},3+m,-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\,\text{Sec}[\tfrac{1}{2}(e+fx)]^2\,\text{Tan}[\tfrac{1}{2}(e+fx)]\Big)\Big)\Big/$$

$$\Big(\text{AppellF1}[\tfrac{1}{2},2+m,-m,\tfrac{3}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+\tfrac{2}{3}\,\Big(m\,\text{AppellF1}[\tfrac{3}{2},2+m,1-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]+(2+m)\,\text{AppellF1}[\tfrac{3}{2},3+m,-m,\tfrac{5}{2},\text{Tan}[\tfrac{1}{2}(e+fx)]^2,-\text{Tan}[\tfrac{1}{2}(e+fx)]^2]\Big)\,\text{Tan}[\tfrac{1}{2}(e+fx)]^2\Big)+$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\left(2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left.m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+3\left(-\frac{1}{3}(1-m)\right.$$

$$\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3} m\,\text{AppellF1}\left[\frac{3}{2},\right.$$

$$\left.\left.1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left((-1+m)\left(-\frac{3}{5}(2-m)\,\text{AppellF1}\left[\frac{5}{2}, m, 3-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{3}{5} m\,\text{AppellF1}\left[\frac{5}{2}, 1+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2}, 1+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2}, 2+m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\right) \Big/$$

$$\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)-$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)$$

$$\left(2\left(m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left.(1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$3\left(\frac{1}{3} m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3}(1+m)\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2}, 1+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$
$$(1+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$
$$\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(1+m)\,\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2-$$
$$\left(2\,\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\right.\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$
$$\frac{1}{3}(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$
$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\right.\right.$$
$$\left.\left.\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$
$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},2+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$
$$\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$
$$(2+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$
$$\left.\frac{3}{5}(3+m)\,\text{AppellF1}\left[\frac{5}{2},4+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\left(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\Bigg)\Bigg)$$

- **Problem 359: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+fx]^2\,(b\,\text{Sec}[e+fx])^m\,dx$$

Optimal (type 5, 59 leaves, 1 step):

$$-\frac{1}{f}\left(\cos[e+f x]^2\right)^{\frac{1}{2}(-1+m)} \cot[e+f x] \,\text{Hypergeometric2F1}\left[-\frac{1}{2}, \frac{1}{2}(-1+m), \frac{1}{2}, \sin[e+f x]^2\right] (b \sec[e+f x])^m$$

Result (type 6, 6766 leaves):

$$\left(\cot\left[\frac{1}{2}(e+f x)\right] \cot[e+f x]^2 (b \sec[e+f x])^m \left(\frac{1}{1-\tan\left[\frac{1}{2}(e+f x)\right]^2}\right)^{2+m}\right.$$
$$\left(-1+\tan\left[\frac{1}{2}(e+f x)\right]^2\right)^2 \left(1+\tan\left[\frac{1}{2}(e+f x)\right]^2\right)^m \left(-\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/\right.$$
$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.-\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \tan\left[\frac{1}{2}(e+f x)\right]^2\right) +$$
$$3 \tan\left[\frac{1}{2}(e+f x)\right]^2 \left(-\left(4 \,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/ \left(\left(1+\tan\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.$$
$$\left(3 \,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 \left((-1+m) \,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.\left.-\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + m \,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \tan\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$
$$\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/ \left(3 \,\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$
$$2 m \left(\text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$
$$\left.\left.\left.\left.\left.\text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \tan\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right) \Big/$$
$$\left(2 f \left(\frac{1}{2} m \sec\left[\frac{1}{2}(e+f x)\right]^2 \left(\frac{1}{1-\tan\left[\frac{1}{2}(e+f x)\right]^2}\right)^{2+m} \left(-1+\tan\left[\frac{1}{2}(e+f x)\right]^2\right)^2 \left(1+\tan\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right.\right.$$
$$\left(-\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/\right.$$
$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.\left.-\tan\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \tan\left[\frac{1}{2}(e+f x)\right]^2, -\tan\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \tan\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$3\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\left(4\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$
$$\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{3}{2},m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},1+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)+$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{2+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m$$
$$\left(-\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\right.$$
$$\left(\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$
$$3\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\left(4\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$
$$\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{3}{2},m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},1+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)-$$
$$\frac{1}{4}\,\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{2+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m$$

$$\left(-\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\right.$$

$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2m\left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right) +$$

$$3\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-\left(4\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right.\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right) +$$

$$\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2m\left(\text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +\right.$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\right) +$$

$$\frac{1}{2}(2+m)\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{3+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$

$$\left(-\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\right.$$

$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2m\left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right) +$$

$$3\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-\left(4\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right.\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right) +$$

$$\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]+2m\Big(\mathrm{AppellF1}\left[\frac{3}{2},m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\mathrm{AppellF1}\left[\frac{3}{2},1+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)\Big)+$$

$$\frac{1}{2}\mathrm{Cot}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{2+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$

$$\Big(-\Big(-m\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]-$$

$$m\,\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big/$$

$$\Big(\mathrm{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\Big(\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)+$$

$$\Big(\mathrm{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big(-m\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]-m\,\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+2m\Big(\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+2m\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\Big(-\frac{1}{3}(1-m)\mathrm{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{2}{3}m\,\mathrm{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{1}{3}(1+m)\mathrm{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big)\Big)\Big/$$

$$\Big(\mathrm{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\Big(\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\mathrm{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)^2+$$

$$3\,\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big(-\Big(4\,\mathrm{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\Big/\Big(\Big(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)$$

$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,\Big((-1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+m\,\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$\text{AppellF1}\Big[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big/\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,m\,\Big(\text{AppellF1}\Big[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$3\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\Big(\Big(4\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)\Big/$$

$$\Big(\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\,\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big((-1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$m\,\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)-$$

$$\Big(4\,\Big(-\frac{1}{3}\,(1-m)\,\text{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+$$

$$\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)\Big)\Big/$$

$$\Big(\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big((-1+m)\,\text{AppellF1}\Big[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$m\,\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)+$$

$$\Big(\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+$$

$$\frac{1}{3}\,m\,\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)\Big/$$

$$\Big(3\,\text{AppellF1}\Big[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+2\,m\,\Big(\text{AppellF1}\Big[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+\text{AppellF1}\Big[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)-$$

$$\left(\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(2 m \left(\text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + 3 \left(\frac{1}{3} m \text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3} m \text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) + 2 m \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left(-\frac{3}{5}(1-m) \text{AppellF1}\left[\frac{5}{2}, m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{6}{5} m \text{AppellF1}\left[\frac{5}{2}, 1+m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{3}{5}(1+m) \text{AppellF1}\left[\frac{5}{2}, 2+m, -m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right) \Big/$$

$$\left(3 \text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2 +$$

$$\left(4 \text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(2 \left((-1+m) \text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + m \text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + 3 \left(-\frac{1}{3}(1-m) \text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3} m \text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) + 2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left((-1+m) \left(-\frac{3}{5}(2-m) \text{AppellF1}\left[\frac{5}{2}, m, 3-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{3}{5} m \text{AppellF1}\left[\frac{5}{2}, 1+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) + m \left(-\frac{3}{5}(1-m) \text{AppellF1}\left[\frac{5}{2}, 1+m, 2-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{3}{5}(1+m) \text{AppellF1}\left[\frac{5}{2}, 2+m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right) \Big/$$

$$\left(\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(3\,\mathrm{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\mathrm{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 360: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f x]^4\,(b\,\mathrm{Sec}[e+f x])^m\,dx$$

Optimal (type 5, 63 leaves, 1 step):

$$-\frac{1}{3 f}\left(\mathrm{Cos}[e+f x]^2\right)^{\frac{1}{2}(-3+m)}\mathrm{Cot}[e+f x]^3\,\mathrm{Hypergeometric2F1}\left[-\frac{3}{2}, \frac{1}{2}(-3+m), -\frac{1}{2}, \mathrm{Sin}[e+f x]^2\right](b\,\mathrm{Sec}[e+f x])^m$$

Result (type 6, 11 071 leaves):

$$\Bigg(\mathrm{Cot}\left[\frac{1}{2}(e+f x)\right]^3\mathrm{Cot}[e+f x]^4\,(b\,\mathrm{Sec}[e+f x])^m\left(\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg(-\mathrm{AppellF1}\left[-\frac{3}{2}, m, -m, -\frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\left(\mathrm{AppellF1}\left[-\frac{3}{2}, m, -m, -\frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2m\left(\mathrm{AppellF1}\left[-\frac{1}{2}, m, 1-m, \frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[-\frac{1}{2}, 1+m, -m, \frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(15\,\mathrm{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$

$$\left(\mathrm{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2m\left(\mathrm{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\mathrm{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^4\Bigg(\left(144\,\mathrm{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\Bigg(\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\left(3\,\mathrm{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\mathrm{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\mathrm{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)-$$

$$\left(45\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{3}{2},m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3}{2},1+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$
$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$
$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right)\Big/$$
$$\left(24\,f\left(\frac{1}{24}m\,\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right.\right.$$
$$\left(-\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/\right.$$
$$\left(\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-2\,m\left(\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[-\frac{1}{2},1+m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$
$$\left(15\,\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$
$$\left(\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^4\left(\left(\left(144\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.\right.$$
$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$
$$\left(45\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2 m \Big(\text{AppellF1}\Big[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] +$$

$$\text{AppellF1}\Big[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) +$$

$$\Big(5\, \text{AppellF1}\Big[\frac{3}{2}, m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) \Big/$$

$$\Big(5\, \text{AppellF1}\Big[\frac{3}{2}, m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2 m \Big(\text{AppellF1}\Big[\frac{5}{2}, m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + \text{AppellF1}\Big[\frac{5}{2}, 1+m, -m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)\Big) +$$

$$\frac{1}{6} \text{Csc}\left[\frac{1}{2}(e+f x)\right]^2 \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m} \Big(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^3 \Big(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^m$$

$$\Big(-\text{AppellF1}\Big[-\frac{3}{2}, m, -m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \Big/$$

$$\Big(\text{AppellF1}\Big[-\frac{3}{2}, m, -m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] - 2 m \Big(\text{AppellF1}\Big[-\frac{1}{2}, m, 1-m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + \text{AppellF1}\Big[-\frac{1}{2}, 1+m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) +$$

$$\Big(15\, \text{AppellF1}\Big[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) \Big/$$

$$\Big(\text{AppellF1}\Big[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2 m \Big(\text{AppellF1}\Big[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + \text{AppellF1}\Big[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) +$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^4 \Big(\Big(144\, \text{AppellF1}\Big[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \Big/ \Big(\Big(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)$$

$$\Big(3\, \text{AppellF1}\Big[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2 \Big((-1+m)\, \text{AppellF1}\Big[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + m\, \text{AppellF1}\Big[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big) -$$

$$\Big(45\, \text{AppellF1}\Big[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\Big) \Big/ \Big(3\, \text{AppellF1}\Big[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] + 2 m \Big(\text{AppellF1}\Big[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big] +$$

$$\text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2}, m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) \Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2}, m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{5}{2}, m, 1-m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{5}{2}, 1+m, -m, \frac{7}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right) -$$

$$\frac{1}{16} \text{Cot}\left[\frac{1}{2}(e+f x)\right]^2 \text{Csc}\left[\frac{1}{2}(e+f x)\right]^2 \left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{4+m} \left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4 \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m$$

$$\left(-\text{AppellF1}\left[-\frac{3}{2}, m, -m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \Big/\right.$$

$$\left(\text{AppellF1}\left[-\frac{3}{2}, m, -m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2 m \left(\text{AppellF1}\left[-\frac{1}{2}, m, 1-m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[-\frac{1}{2}, 1+m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(15\,\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) \Big/$$

$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^4 \left(\left(144\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/ \left(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 \left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) -$$

$$\left(45\,\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/ \left(3\,\text{AppellF1}\left[\frac{1}{2}, m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 m \left(\text{AppellF1}\left[\frac{3}{2}, m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2}, 1+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Bigg)\Bigg)+$$

$$\frac{1}{24}(4+m)\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{5+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$

$$\left(-\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/\right.$$

$$\left(\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2m\left(\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[-\frac{1}{2},1+m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left(15\,\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$

$$\left(\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^4\left(\left(144\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\Big/\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right.\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$

$$\left(45\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\Big/\left(3\,\text{AppellF1}\left[\frac{1}{2},m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{3}{2},m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.\left.\text{AppellF1}\left[\frac{3}{2},1+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\bigg)\bigg)+$$
$$\frac{1}{24}\text{Cot}\left[\frac{1}{2}(e+fx)\right]^3\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^{4+m}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^4\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m$$
$$\Bigg(-\Bigg(3m\,\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$
$$3m\,\text{AppellF1}\left[-\frac{1}{2},1+m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg/$$
$$\left(\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2m\left(\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[-\frac{1}{2},1+m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$
$$\left(15\,\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Bigg/$$
$$\left(\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$
$$\left(15\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-m\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]-\right.\right.$$
$$\left.\left.m\,\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\Bigg/$$
$$\left(\text{AppellF1}\left[-\frac{1}{2},m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+2m\left(\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+$$
$$\left(\text{AppellF1}\left[-\frac{3}{2},m,-m,-\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(3m\,\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\right.\right.\right.\right.$$
$$\left.\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+3m\,\text{AppellF1}\left[-\frac{1}{2},1+m,-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]-2m\left(\text{AppellF1}\left[-\frac{1}{2},m,1-m,\frac{1}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$\text{AppellF1}\left[-\frac{1}{2}, 1+m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] -$$

$$2\,m\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2 \left((1-m)\,\text{AppellF1}\left[\frac{1}{2}, m, 2-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\right.\right.$$

$$\left.\frac{1}{2}(e+fx)\right] - 2\,m\,\text{AppellF1}\left[\frac{1}{2}, 1+m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] -$$

$$\left.\left.\left.\left.(1+m)\,\text{AppellF1}\left[\frac{1}{2}, 2+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\right) \Big/$$

$$\left(\text{AppellF1}\left[-\frac{3}{2}, m, -m, -\frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] - 2\,m\,\left(\text{AppellF1}\left[-\frac{1}{2}, m, 1-m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + \text{AppellF1}\left[-\frac{1}{2}, 1+m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2 -$$

$$\left(15\,\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right.$$

$$\left(-m\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] -\right.$$

$$m\,\text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] +$$

$$2\,m\,\left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2},\right.\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] + 2\,m\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] +\right.$$

$$\frac{2}{3}\,m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right] +$$

$$\left.\left.\left.\left.\frac{1}{3}(1+m)\,\text{AppellF1}\left[\frac{3}{2}, 2+m, -m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\right) \Big/$$

$$\left(\text{AppellF1}\left[-\frac{1}{2}, m, -m, \frac{1}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\,m\,\left(\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + \text{AppellF1}\left[\frac{1}{2}, 1+m, -m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2 +$$

$$2\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \text{Tan}\left[\frac{1}{2}(e+fx)\right]^3 \left(\left(144\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\Big/\right.$$

$$\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right) \left(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] + 2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m,\right.\right.\right.\right.$$

$$\frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+m\ \mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)$$

$$\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big)-\left(45\ \mathrm{AppellF1}\left[\frac{1}{2},\ m,\ -m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\right)\Big/$$

$$\Big(3\ \mathrm{AppellF1}\left[\frac{1}{2},\ m,\ -m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+2\ m\ \Big(\mathrm{AppellF1}\left[\frac{3}{2},\ m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+\mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ -m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)+$$

$$\Big(5\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ -m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big/$$

$$\Big(5\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ -m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+2\ m\ \Big(\mathrm{AppellF1}\left[\frac{5}{2},\ m,\ 1-m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+\mathrm{AppellF1}\left[\frac{5}{2},\ 1+m,\ -m,\ \frac{7}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big)+$$

$$\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^4\ \Big(-\Big(144\ \mathrm{AppellF1}\left[\frac{1}{2},\ m,\ 1-m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\Big)\Big/$$

$$\Big(\Big(1+\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)^2\ \Big(3\ \mathrm{AppellF1}\left[\frac{1}{2},\ m,\ 1-m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+$$

$$2\ \Big((-1+m)\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ 2-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+$$

$$m\ \mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big)+$$

$$\Big(144\ \Big(-\frac{1}{3}\ (1-m)\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ 2-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]+$$

$$\frac{1}{3}\ m\ \mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\Big)\Big)\Big/$$

$$\Big(\Big(1+\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\ \Big(3\ \mathrm{AppellF1}\left[\frac{1}{2},\ m,\ 1-m,\ \frac{3}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+$$

$$2\ \Big((-1+m)\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ 2-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]+$$

$$m\ \mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\Big)\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\Big)\Big)-$$

$$\Big(45\ \Big(\frac{1}{3}\ m\ \mathrm{AppellF1}\left[\frac{3}{2},\ m,\ 1-m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]+$$

$$\frac{1}{3}\ m\ \mathrm{AppellF1}\left[\frac{3}{2},\ 1+m,\ -m,\ \frac{5}{2},\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]^2\right]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f\,x)\right]^2\ \mathrm{Tan}\left[\frac{1}{2}\ (e+f\,x)\right]\Big)\Big)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,m\,\left(\text{AppellF1}\left[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},\,m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},\,m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,m\,\left(\text{AppellF1}\left[\frac{5}{2},\,m,\,1-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},\,1+m,\,-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\left(5\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(\frac{3}{5}\,m\,\text{AppellF1}\left[\frac{5}{2},\,m,\,1-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.\right.$$

$$\left.\left.\frac{3}{5}\,m\,\text{AppellF1}\left[\frac{5}{2},\,1+m,\,-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},\,m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,m\,\left(\text{AppellF1}\left[\frac{5}{2},\,m,\,1-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},\,1+m,\,-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$

$$\left(45\,\text{AppellF1}\left[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\left(2\,m\,\left(\text{AppellF1}\left[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\Big[$$

$$\frac{1}{2}\,(e+f\,x)\Big]+3\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.$$

$$\left.\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)+2\,m$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(-\frac{3}{5}\,(1-m)\,\text{AppellF1}\left[\frac{5}{2},\,m,\,2-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+\right.$$

$$f\,x)\Big]+\frac{6}{5}\,m\,\text{AppellF1}\left[\frac{5}{2},\,1+m,\,1-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+$$

$$\left.\left.\left.\frac{3}{5}\,(1+m)\,\text{AppellF1}\left[\frac{5}{2},\,2+m,\,-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\right)\right)\Big/$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,m\,\left(\text{AppellF1}\left[\frac{3}{2},\,m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\text{AppellF1}\left[\frac{3}{2},\,1+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2-$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\left(2\,m\left(\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left.\text{AppellF1}\left[\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$5\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{3}{5}m\,\text{AppellF1}\left[\right.\right.$$

$$\left.\left.\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,m\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(-\frac{5}{7}(1-m)\,\text{AppellF1}\left[\frac{7}{2},m,2-m,\frac{9}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\frac{10}{7}m\,\text{AppellF1}\left[\frac{7}{2},1+m,1-m,\frac{9}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\left.\left.\left.\frac{5}{7}(1+m)\,\text{AppellF1}\left[\frac{7}{2},2+m,-m,\frac{9}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\Big/$$

$$\left(5\,\text{AppellF1}\left[\frac{3}{2},m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\,m\left(\text{AppellF1}\left[\frac{5}{2},m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{AppellF1}\left[\frac{5}{2},1+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2-$$

$$\left(144\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\right.\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+3\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left((-1+m)\left(-\frac{3}{5}(2-m)\,\text{AppellF1}\left[\frac{5}{2},m,3-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{3}{5}\right.$$

$$(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg(\Bigg(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$
$$2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$
$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 361: Unable to integrate problem.**

$$\int \text{Cot}[e+fx]^6\,(b\,\text{Sec}[e+fx])^m\,dx$$

Optimal (type 5, 63 leaves, 1 step):

$$-\frac{1}{5f}\left(\text{Cos}[e+fx]^2\right)^{\frac{1}{2}(-5+m)}\text{Cot}[e+fx]^5\,\text{Hypergeometric2F1}\left[-\frac{5}{2},\frac{1}{2}(-5+m),-\frac{3}{2},\text{Sin}[e+fx]^2\right](b\,\text{Sec}[e+fx])^m$$

Result (type 8, 21 leaves):

$$\int \text{Cot}[e+fx]^6\,(b\,\text{Sec}[e+fx])^m\,dx$$

- **Problem 367: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[a+bx]^2\,(d\,\text{Tan}[a+bx])^n\,dx$$

Optimal (type 5, 50 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}\left[2,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[a+bx]^2\right](d\,\text{Tan}[a+bx])^{1+n}}{b\,d\,(1+n)}$$

Result (type 6, 7155 leaves):

$$\left(2^{1+n}(3+n)\,\text{Tan}\left[\frac{1}{2}(a+bx)\right]\right)\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+bx)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2}\right)^n$$
$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right)^2\right)\right/$$
$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+bx)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+2\,\Bigg(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Bigg)\Big/\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+2\,\Bigg(-3\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,4,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,3,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Bigg)\Bigg)$$

$$\text{Tan}[a+b\,x]^{-n}\,(d\,\text{Tan}[a+b\,x])^n\,\Bigg(\frac{1}{4}\,\text{Cos}[2\,(a+b\,x)]^3\,\text{Tan}[a+b\,x]^n-\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+$$

$$\frac{1}{2}\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]^3\,\text{Tan}[a+b\,x]^n+$$

$$\text{Cos}[2\,(a+b\,x)]^2\,\Bigg(\frac{1}{2}\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n\Bigg)+$$

$$\text{Cos}[2\,(a+b\,x)]\,\Bigg(\frac{1}{4}\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(b\,(1+n)\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)^3\,\Bigg(-\frac{1}{(1+n)\,\Big(1+\text{Tan}\big[\frac{1}{2}(a+b\,x)\big]^2\Big)^4}\,3\times 2^{1+n}\,(3+n)\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2$$

$$\Bigg(-\frac{\text{Tan}\big[\frac{1}{2}(a+b\,x)\big]}{-1+\text{Tan}\big[\frac{1}{2}(a+b\,x)\big]^2}\Bigg)^n\,\Bigg(\Bigg(\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)^2\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]-2\,\Bigg(\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]-n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,1,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+2\,\Bigg(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)+$$

$$\left(4\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\Bigg/\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

$$n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}\,2^n(3+n)\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)+$$

$$\left(4\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\Bigg/\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n$$

$$\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}\,2^{1+n}n(3+n)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^{-1+n}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)}\right)$$

$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right)\Big/\right.$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right) -$$
$$\left(4\,\text{AppellF1}\left[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 2, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right) +$$
$$\left(4\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2},\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big] + 2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 3, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right) +$$
$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3}\,2^{1+n}(3+n)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$
$$\left(\left(2\,\text{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)\Big/\right.$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - n\,\text{AppellF1}\left[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right) +$$
$$\left(\left(-1/(3+n)(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2}, n, 2, 1+\frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(a+b x)\right] + 1/(3+n)n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2}, 1+n, 1, 1+\frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\Big)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)-$$

$$\left(4\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\Big/$$

$$\Bigg((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)-$$

$$\Bigg(4\Bigg(-1/(3+n)\,2\,(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},n,3,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+1/(3+n)\,n\,(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},1+n,2,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)+$$

$$\Bigg(4\Bigg(-1/(3+n)\,3\,(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},n,4,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+1/(3+n)\,n\,(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},1+n,3,1+\frac{3+n}{2},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Big/$$

$$\Bigg((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)-$$

$$\left(\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right.$$

$$\Bigg(-2\Bigg(\mathrm{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,1,\right.$$

$$\left.\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\Bigg(-\frac{1}{3+n}$$

$$(1+n)\,\mathrm{AppellF1}\left[1+\frac{1+n}{2},n,2,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}$$

$$n\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,1+n,\,1,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)\,-$$

$$2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\Big(-\frac{1}{5+n}2\,(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},\,n,\,3,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+\frac{1}{5+n}n\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,2,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]-n\,\Big(-\frac{1}{5+n}(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,2,\,1+\frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,\,1,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]-2\,\Big(\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]-n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,1,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big)^2+$$

$$\Big(4\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\left(1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)$$

$$\Big(2\,\Big(-2\,\text{AppellF1}\left[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\Big)\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+(3+n)\,\Big(-\frac{1}{3+n}2\,(1+n)$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},\,n,\,3,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+\frac{1}{3+n}$$

$$n\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,1+n,\,2,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)+$$

$$2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\Big(-2\,\Big(-\frac{1}{5+n}3\,(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},\,n,\,4,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+\frac{1}{5+n}n\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,3,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)+n\,\Big(-\frac{1}{5+n}2\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,3,\,1+\frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,\,2,\,1+\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2-$$

$$\left(4\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\left(-\frac{1}{3+n}3(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}n(1+n)\right.$$

$$\left.\text{AppellF1}\left[1+\frac{1+n}{2},1+n,3,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\left(-3\left(-\frac{1}{5+n}4(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,5,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)+n\left(-\frac{1}{5+n}3(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},\right.$$

$$\left.\left.\left.\left.\left.2+n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right)\right)$$

- **Problem 368: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[a+b x]^4\,(d\,\text{Tan}[a+b x])^n\,dx$$

Optimal (type 5, 50 leaves, 2 steps):

$$\frac{\text{Hypergeometric2F1}\left[3,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[a+b x]^2\right](d\,\text{Tan}[a+b x])^{1+n}}{b\,d\,(1+n)}$$

Result (type 6, 12 351 leaves):

$$\left(2^{1+n}\,(3+n)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]\,\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2}\right)^n\right.$$

$$\left(\left(\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^4\right)\Big/\right.$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]-2\,\left(\mathrm{AppellF1}\left[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,1+n,\,1,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)-$$

$$\left(8\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^3\right)\Big/$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+2\,\left(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)+$$

$$\left(24\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+2\,\left(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,n,\,4,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+n\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,1+n,\,3,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)-$$

$$\left(32\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,4,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)\right)\Big/$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,4,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+\right.$$

$$2\,\left(-4\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,n,\,5,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,1+n,\,4,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)+$$

$$\left(16\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,5,\,\frac{3+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\Big/\,\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},\,n,\,5,\,\frac{3+n}{2},\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+2\,\left(-5\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,n,\,6,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.n\,\mathrm{AppellF1}\left[\frac{3+n}{2},\,1+n,\,5,\,\frac{5+n}{2},\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)\right)$$

$$\text{Tan}[a+b\,x]^{-n}\,(d\,\text{Tan}[a+b\,x])^n\left(-\frac{1}{16}\,i\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,\text{Sin}[2\,(a+b\,x)]\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\frac{3}{8}\,i\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-$$

$$\frac{1}{4}\,\text{Sin}[2\,(a+b\,x)]^3\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-$$

$$\frac{1}{16}\,i\,\text{Sin}[2\,(a+b\,x)]^4\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+$$

$$\text{Cos}[4\,(a+b\,x)]\left(\frac{1}{16}\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\right.$$

$$\left.\frac{3}{8}\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n-\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]^3\,\text{Tan}[a+b\,x]^n+\frac{1}{16}\,\text{Sin}[2\,(a+b\,x)]^4\,\text{Tan}[a+b\,x]^n\right)+$$

$$\text{Cos}[2\,(a+b\,x)]^4\left(\frac{1}{16}\,\text{Cos}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{1}{16}\,i\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n\right)+$$

$$\text{Cos}[2\,(a+b\,x)]^3\left(-\frac{1}{4}\,i\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,\text{Sin}[2\,(a+b\,x)]\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\left.\text{Cos}[4\,(a+b\,x)]\left(\frac{1}{4}\,\text{Tan}[a+b\,x]^n+\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n\right)\right)+\text{Cos}[2\,(a+b\,x)]^2$$

$$\left(-\frac{3}{8}\,i\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,\text{Sin}[2\,(a+b\,x)]\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,i\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\left.\text{Cos}[4\,(a+b\,x)]\left(\frac{3}{8}\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{3}{8}\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n\right)\right)+$$

$$\text{Cos}[2\,(a+b\,x)]\left(-\frac{1}{4}\,i\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,\text{Sin}[2\,(a+b\,x)]\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\frac{3}{4}\,i\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{1}{4}\,\text{Sin}[2\,(a+b\,x)]^3\,\text{Sin}[4\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\text{Cos}[4\,(a+b\,x)]$$

$$\left.\left.\left(\frac{1}{4}\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,i\,\text{Sin}[2\,(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{3}{4}\,\text{Sin}[2\,(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n-\frac{1}{4}\,i\,\text{Sin}[2\,(a+b\,x)]^3\,\text{Tan}[a+b\,x]^n\right)\right)\right)\Big/$$

$$\left(b\,(1+n)\left(1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^5\left(-\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^6}\,5\times 2^{1+n}\,(3+n)\,\text{Sec}\left[\frac{1}{2}\,(a+b\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right.\right.$$

$$\left(-\frac{\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2}\right)^n\left(\left(\text{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right)^4\right)\Big/\right.$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\right)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Big(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)+$$

$$\left(24\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Big(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(32\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Big(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)+$$

$$\left(16\,\text{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\Big/\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Big(-5\,\text{AppellF1}\left[\frac{3+n}{2},n,6,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

$$n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)+$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^5}\,2^n\,(3+n)\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$

$$\Bigg(\left(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^4\right)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-2\Big(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^3\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)+$$
$$\left(24\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)-$$
$$\left(32\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)+$$
$$\left(16\,\text{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big]+2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2},n,6,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\right.$$
$$\left.\left.\text{AppellF1}\left[\frac{3+n}{2},1+n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)+$$
$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^5}\,2^{1+n}\,n\,(3+n)\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2}\right)^{-1+n}$$
$$\left(\frac{\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)}\right)$$
$$\left(\left(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^4\right)\Big/\right.$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big] - n\,\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big) -$$

$$\Big(8\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\Big(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n\,\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 2, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big) +$$

$$\Big(24\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 3, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\Big(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2}, n, 4, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n\,\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 3, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big) -$$

$$\Big(32\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 4, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\Big(-4\,\mathrm{AppellF1}\left[\frac{3+n}{2}, n, 5, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n\,\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 4, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big) +$$

$$\Big(16\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2},\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\Big(-5\,\mathrm{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n$$

$$\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big) +$$

$$\frac{1}{(1+n)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^5}\,2^{1+n}(3+n)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$

$$\Big(\Big(4\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 2\Big(\mathrm{AppellF1}\left[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - n\,\mathrm{AppellF1}\left[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big) +$$

$$\Bigg(\Bigg(-1/(3+n)(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,n,\,2,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]+1/(3+n)\,n\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,1+n,\,1,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\Bigg)\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^4\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\,\Bigg(\text{AppellF1}\left[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,1,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)-$$

$$\Bigg(24\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\,\Bigg(-2\,\text{AppellF1}\left[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)-$$

$$\Bigg(8\,\Bigg(-1/(3+n)\,2\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,n,\,3,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]+1/(3+n)\,n\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,1+n,\,2,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\Bigg)\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^3\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\,\Bigg(-2\,\text{AppellF1}\left[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)+$$

$$\Bigg(48\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\,\Bigg(-3\,\text{AppellF1}\left[\frac{3+n}{2},\,n,\,4,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,3,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Bigg)+$$

$$\Bigg(24\,\Bigg(-1/(3+n)\,3\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,n,\,4,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]+1/(3+n)\,n\,(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},\,1+n,\,3,\,1+\frac{3+n}{2},\,\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)])\ (1+\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)^2)\Big/$$

$$((3+n)\ \text{AppellF1}[\tfrac{1+n}{2},n,3,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-3\ \text{AppellF1}[\tfrac{3+n}{2},n,4,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\tfrac{3+n}{2},1+n,3,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)-$$

$$(32\ \text{AppellF1}[\tfrac{1+n}{2},n,4,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)])\Big/$$

$$((3+n)\ \text{AppellF1}[\tfrac{1+n}{2},n,4,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-4\ \text{AppellF1}[\tfrac{3+n}{2},n,5,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\tfrac{3+n}{2},1+n,4,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)-$$

$$(32\ (-1/(3+n)4\ (1+n)\ \text{AppellF1}[1+\tfrac{1+n}{2},n,5,1+\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]+1/(3+n)n\ (1+n)\ \text{AppellF1}[1+\tfrac{1+n}{2},1+n,4,1+\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)])\ (1+\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2))\Big/$$

$$((3+n)\ \text{AppellF1}[\tfrac{1+n}{2},n,4,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-4\ \text{AppellF1}[\tfrac{3+n}{2},n,5,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\tfrac{3+n}{2},1+n,4,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)+$$

$$(16\ (-1/(3+n)5\ (1+n)\ \text{AppellF1}[1+\tfrac{1+n}{2},n,6,1+\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]+1/(3+n)n\ (1+n)\ \text{AppellF1}[1+\tfrac{1+n}{2},1+n,5,1+\tfrac{3+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]))\Big/$$

$$((3+n)\ \text{AppellF1}[\tfrac{1+n}{2},n,5,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-5\ \text{AppellF1}[\tfrac{3+n}{2},n,6,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\tfrac{3+n}{2},1+n,5,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)-$$

$$(\text{AppellF1}[\tfrac{1+n}{2},n,1,\tfrac{3+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ (1+\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)^4$$

$$(-2\ (\text{AppellF1}[\tfrac{3+n}{2},n,2,\tfrac{5+n}{2},\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]-n\ \text{AppellF1}[\tfrac{3+n}{2},1+n,1,$$

$$\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]) \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + (3+n) (-\frac{1}{3+n}$$

$$(1+n) \text{AppellF1}[1+\frac{1+n}{2}, n, 2, 1+\frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{3+n}$$

$$n (1+n) \text{AppellF1}[1+\frac{1+n}{2}, 1+n, 1, 1+\frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)]]) -$$

$$2 \text{Tan}[\tfrac{1}{2}(a+b x)]^2 (-\frac{1}{5+n} 2 (3+n) \text{AppellF1}[1+\frac{3+n}{2}, n, 3, 1+\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{5+n} n (3+n) \text{AppellF1}[1+\frac{3+n}{2}, 1+n, 2, 1+\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] - n (-\frac{1}{5+n}(3+n) \text{AppellF1}[1+\frac{3+n}{2}, 1+n, 2, 1+\frac{5+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{5+n}(1+n)(3+n) \text{AppellF1}[1+\frac{3+n}{2},$$

$$2+n, 1, 1+\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)]])))) /$$

$$((3+n) \text{AppellF1}[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - 2 (\text{AppellF1}[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - n \text{AppellF1}[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]) \text{Tan}[\tfrac{1}{2}(a+b x)]^2)^2 +$$

$$(8 \text{AppellF1}[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] (1+\text{Tan}[\tfrac{1}{2}(a+b x)]^2)^3$$

$$(2 (-2 \text{AppellF1}[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] + n \text{AppellF1}[\frac{3+n}{2}, 1+n, 2, \frac{5+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]) \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + (3+n) (-\frac{1}{3+n} 2 (1+n)$$

$$\text{AppellF1}[1+\frac{1+n}{2}, n, 3, 1+\frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{3+n}$$

$$n (1+n) \text{AppellF1}[1+\frac{1+n}{2}, 1+n, 2, 1+\frac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)]]) +$$

$$2 \text{Tan}[\tfrac{1}{2}(a+b x)]^2 (-2 (-\frac{1}{5+n} 3 (3+n) \text{AppellF1}[1+\frac{3+n}{2}, n, 4, 1+\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)] + \frac{1}{5+n} n (3+n) \text{AppellF1}[1+\frac{3+n}{2}, 1+n, 3, 1+\frac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] \text{Sec}[\tfrac{1}{2}(a+b x)]^2 \text{Tan}[\tfrac{1}{2}(a+b x)]]) + n (-\frac{1}{5+n} 2 (3+n) \text{AppellF1}[1+\frac{3+n}{2}, 1+n, 3, 1+\frac{5+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]+\frac{1}{5+n}(1+n)\ (3+n)\ \text{AppellF1}[1+\frac{3+n}{2},$$

$$2+n,\ 2,\ 1+\frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]]))))\Big/$$

$$(\ (3+n)\ \text{AppellF1}[\frac{1+n}{2},\ n,\ 2,\ \frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-2\ \text{AppellF1}[\frac{3+n}{2},\ n,\ 3,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\frac{3+n}{2},\ 1+n,\ 2,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)^2-$$

$$(24\ \text{AppellF1}[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ (1+\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)^2$$

$$(2\ (-3\ \text{AppellF1}[\frac{3+n}{2},\ n,\ 4,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\frac{3+n}{2},\ 1+n,\ 3,\ \frac{5+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]+(3+n)\ (-\frac{1}{3+n}3\ (1+n)$$

$$\text{AppellF1}[1+\frac{1+n}{2},\ n,\ 4,\ 1+\frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]+\frac{1}{3+n}$$

$$n\ (1+n)\ \text{AppellF1}[1+\frac{1+n}{2},\ 1+n,\ 3,\ 1+\frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]])+$$

$$2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2\ (-3\ (-\frac{1}{5+n}4\ (3+n)\ \text{AppellF1}[1+\frac{3+n}{2},\ n,\ 5,\ 1+\frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]+\frac{1}{5+n}n\ (3+n)\ \text{AppellF1}[1+\frac{3+n}{2},\ 1+n,\ 4,\ 1+\frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]])+n\ (-\frac{1}{5+n}3\ (3+n)\ \text{AppellF1}[1+\frac{3+n}{2},\ 1+n,\ 4,\ 1+\frac{5+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]+\frac{1}{5+n}(1+n)\ (3+n)\ \text{AppellF1}[1+\frac{3+n}{2},$$

$$2+n,\ 3,\ 1+\frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ \text{Sec}[\tfrac{1}{2}(a+b\,x)]^2\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]]))))\Big/$$

$$(\ (3+n)\ \text{AppellF1}[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+2\ (-3\ \text{AppellF1}[\frac{3+n}{2},\ n,\ 4,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\frac{3+n}{2},\ 1+n,\ 3,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2])\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)^2+$$

$$(32\ \text{AppellF1}[\frac{1+n}{2},\ n,\ 4,\ \frac{3+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]\ (1+\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2)$$

$$(2\ (-4\ \text{AppellF1}[\frac{3+n}{2},\ n,\ 5,\ \frac{5+n}{2},\ \text{Tan}[\tfrac{1}{2}(a+b\,x)]^2,\ -\text{Tan}[\tfrac{1}{2}(a+b\,x)]^2]+n\ \text{AppellF1}[\frac{3+n}{2},\ 1+n,\ 4,\ \frac{5+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\left(-\frac{1}{3+n}4(1+n)\right.$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},n,5,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}$$

$$n(1+n)\text{AppellF1}\left[1+\frac{1+n}{2},1+n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\left(-4\left(-\frac{1}{5+n}5(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},n,6,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+n\left(-\frac{1}{5+n}4(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},\right.$$

$$\left.2+n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left((3+n)\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)^2-$$

$$\left(16\,\text{AppellF1}\left[\frac{1+n}{2},n,5,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(2\left(-5\,\text{AppellF1}\left[\frac{3+n}{2},n,6,\frac{5+n}{2},\right.\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\left(-\frac{1}{3+n}5(1+n)\text{AppellF1}\left[1+\frac{1+n}{2},n,6,1+\frac{3+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}n(1+n)$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},1+n,5,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\left(-5\left(-\frac{1}{5+n}6(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},n,7,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},1+n,6,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+n\left(-\frac{1}{5+n}5(3+n)\text{AppellF1}\left[1+\frac{3+n}{2},1+n,6,1+\frac{5+n}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2 \text{Tan}\left[\frac{1}{2}(a+b x)\right] + \frac{1}{5+n}(1+n)(3+n) \text{AppellF1}\left[1+\frac{3+n}{2},\right.$$

$$\left.2+n, 5, 1+\frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2 \text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg) \Big/$$

$$\Bigg((3+n) \text{AppellF1}\left[\frac{1+n}{2}, n, 5, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + 2\Bigg(-5 \text{AppellF1}\left[\frac{3+n}{2}, n, 6, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] + n \text{AppellF1}\left[\frac{3+n}{2}, 1+n, 5, \frac{5+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2, -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)^2\Bigg)\Bigg)\Bigg)$$

Problem 369: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[a+b x]^5 (d \text{Tan}[a+b x])^n \, dx$$

Optimal (type 5, 78 leaves, 1 step):

$$\frac{\left(\text{Cos}[a+b x]^2\right)^{\frac{6+n}{2}} \text{Hypergeometric2F1}\left[\frac{1+n}{2}, \frac{6+n}{2}, \frac{3+n}{2}, \text{Sin}[a+b x]^2\right] \text{Sec}[a+b x]^5 (d \text{Tan}[a+b x])^{1+n}}{b d (1+n)}$$

Result (type 5, 211 leaves):

$$\frac{1}{b(1+n)} 2 \Bigg(\text{Hypergeometric2F1}\left[\frac{1+n}{2}, 1+n, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] -$$

$$8 \Bigg(\text{Hypergeometric2F1}\left[\frac{1+n}{2}, 2+n, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 3 \text{Hypergeometric2F1}\left[\frac{1+n}{2}, 3+n, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] +$$

$$4 \text{Hypergeometric2F1}\left[\frac{1+n}{2}, 4+n, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right] - 2 \text{Hypergeometric2F1}\left[\frac{1+n}{2}, 5+n, \frac{3+n}{2}, \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\Bigg)$$

$$\left(\text{Cos}[a+b x] \text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right)^n \text{Tan}\left[\frac{1}{2}(a+b x)\right] (d \text{Tan}[a+b x])^n$$

Problem 372: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[a+b x] (d \text{Tan}[a+b x])^n \, dx$$

Optimal (type 5, 72 leaves, 1 step):

$$\frac{\text{Cos}[a+b x] \left(\text{Cos}[a+b x]^2\right)^{n/2} \text{Hypergeometric2F1}\left[\frac{n}{2}, \frac{1+n}{2}, \frac{3+n}{2}, \text{Sin}[a+b x]^2\right] (d \text{Tan}[a+b x])^{1+n}}{b d (1+n)}$$

Result (type 6, 4430 leaves):

$$\Bigg(2 (3+n) \text{Cos}\left[\frac{1}{2}(a+b x)\right]^3 \text{Cos}[a+b x] \text{Sin}\left[\frac{1}{2}(a+b x)\right]$$

$$\Bigg(-\Bigg(\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - 2\Bigg(\text{AppellF1}\Big[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - n\,\text{AppellF1}\Big[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) +$$

$$\Bigg(2\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\Big/\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + 2\Bigg(-2\,\text{AppellF1}\Big[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] +$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2}, 1+n, 2, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Bigg)$$

$$\text{Tan}[a+b x]^n\,(d\,\text{Tan}[a+b x])^n\Bigg)\Big/\Bigg(b\,(1+n)\,\Bigg(\frac{1}{1+n}\,2\,n\,(3+n)\,\text{Cos}\Big[\frac{1}{2}(a+b x)\Big]^3\,\text{Sec}[a+b x]^2\,\text{Sin}\Big[\frac{1}{2}(a+b x)\Big]$$

$$\Bigg(-\Bigg(\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - 2\Bigg(\text{AppellF1}\Big[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - n\,\text{AppellF1}\Big[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) +$$

$$\Bigg(2\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\Big/\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + 2\Bigg(-2\,\text{AppellF1}\Big[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + n$$

$$\text{AppellF1}\Big[\frac{3+n}{2}, 1+n, 2, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Bigg)\,\text{Tan}[a+b x]^{-1+n} +$$

$$\frac{1}{1+n}\,(3+n)\,\text{Cos}\Big[\frac{1}{2}(a+b x)\Big]^4\,\Bigg(-\Bigg(\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg)\Big/$$

$$\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 1, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - 2\Bigg(\text{AppellF1}\Big[\frac{3+n}{2}, n, 2, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] - n\,\text{AppellF1}\Big[\frac{3+n}{2}, 1+n, 1, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Bigg) +$$

$$\Bigg(2\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big]\Bigg)\Big/\Bigg((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2}, n, 2, \frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + 2\Bigg(-2\,\text{AppellF1}\Big[\frac{3+n}{2}, n, 3, \frac{5+n}{2}, \text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2, -\text{Tan}\Big[\frac{1}{2}(a+b x)\Big]^2\Big] + n$$

$$\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 2, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]) \,\text{Tan}[\tfrac{1}{2}(a+b x)]^2)) \,\text{Tan}[a+b x]^n - \frac{1}{1+n}$$

$$3(3+n)\,\text{Cos}[\tfrac{1}{2}(a+b x)]^2\,\text{Sin}[\tfrac{1}{2}(a+b x)]^2\,(-(\text{AppellF1}[\tfrac{1+n}{2}, n, 1, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2)\Big/$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 1, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - 2\,(\text{AppellF1}[\tfrac{3+n}{2}, n, 2, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 1, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2) +$$

$$(2\,\text{AppellF1}[\tfrac{1+n}{2}, n, 2, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\Big/\,((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 2, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] + 2\,(-2\,\text{AppellF1}[\tfrac{3+n}{2}, n, 3, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] + n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n,$$

$$2, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2))\,\text{Tan}[a+b x]^n + \frac{1}{1+n}\,2\,(3+n)\,\text{Cos}[\tfrac{1}{2}(a+b x)]^3$$

$$\text{Sin}[\tfrac{1}{2}(a+b x)]\,(-(\text{AppellF1}[\tfrac{1+n}{2}, n, 1, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)])\Big/$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 1, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - 2\,(\text{AppellF1}[\tfrac{3+n}{2}, n, 2, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 1, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2) -$$

$$(\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,(-1/(3+n)\,(1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, n, 2, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]$$

$$\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)] + 1/(3+n)\,n\,(1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, 1+n, 1,$$

$$1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]))\Big/$$

$$((3+n)\,\text{AppellF1}[\tfrac{1+n}{2}, n, 1, \tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - 2\,(\text{AppellF1}[\tfrac{3+n}{2}, n, 2, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2,$$

$$-\text{Tan}[\tfrac{1}{2}(a+b x)]^2] - n\,\text{AppellF1}[\tfrac{3+n}{2}, 1+n, 1, \tfrac{5+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2])\,\text{Tan}[\tfrac{1}{2}(a+b x)]^2) +$$

$$(2\,(-1/(3+n)\,2\,(1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, n, 3, 1+\tfrac{3+n}{2}, \text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2$$

$$\text{Tan}[\tfrac{1}{2}(a+b x)] + 1/(3+n)\,n\,(1+n)\,\text{AppellF1}[1+\tfrac{1+n}{2}, 1+n, 2, 1+\tfrac{3+n}{2},$$

$$\text{Tan}[\tfrac{1}{2}(a+b x)]^2, -\text{Tan}[\tfrac{1}{2}(a+b x)]^2]\,\text{Sec}[\tfrac{1}{2}(a+b x)]^2\,\text{Tan}[\tfrac{1}{2}(a+b x)]))\Big/$$

$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+2\,\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)+$$

$$\Big(\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2$$

$$\Big(-2\,\Big(\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]-n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,1,$$

$$\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+(3+n)\,\Big(-\frac{1}{3+n}$$

$$(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\,n,\,2,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+\frac{1}{3+n}$$

$$n\,(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\,1+n,\,1,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]\Big)-$$

$$2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\Big(-\frac{1}{5+n}2\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,n,\,3,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+\frac{1}{5+n}n\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,2,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]-n\,\Big(-\frac{1}{5+n}(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,2,\,1+\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+\frac{1}{5+n}(1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,\,1,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,1,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]-2\,\Big(\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]-n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,1,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big)^2-$$

$$\Big(2\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\Big(2\,\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\Big)$$

$$\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+(3+n)\,\Big(-\frac{1}{3+n}2\,(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\,n,\,3,\,1+\frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(a+b\,x)\Big]+\frac{1}{3+n}n\,(1+n)$$

$$\text{AppellF1}\left[1+\frac{1+n}{2},1+n,2,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)+$$
$$2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg(-2\Bigg(-\frac{1}{5+n}3(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,4,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)+n\Bigg(-\frac{1}{5+n}2(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,3,1+\frac{5+n}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},\right.$$
$$\left.2+n,2,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$
$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\Bigg(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\right.$$
$$\left.\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$
$$n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)^2\text{Tan}[a+b x]^n\Bigg)\Bigg)$$

- **Problem 373: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[a+b x]^3\,(d\,\text{Tan}[a+b x])^n\,dx$$

Optimal (type 5, 78 leaves, 1 step):

$$\frac{1}{b\,d\,(1+n)}\text{Cos}[a+b x]^3\left(\text{Cos}[a+b x]^2\right)^{\frac{1}{2}(-2+n)}\text{Hypergeometric2F1}\left[\frac{1}{2}(-2+n),\frac{1+n}{2},\frac{3+n}{2},\text{Sin}[a+b x]^2\right](d\,\text{Tan}[a+b x])^{1+n}$$

Result (type 6, 9792 leaves):

$$-\Bigg(\Bigg(2^{1+n}(3+n)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$
$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\Bigg)\Bigg/$$
$$\Bigg((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-2\Bigg(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Bigg)-$$

$$\left(6\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-2\,\text{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)\Big/$$

$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)$$

$$\text{Tan}[a+b\,x]^{-n}\,(d\,\text{Tan}[a+b\,x])^n\left(-\frac{1}{8}\,i\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,\text{Sin}[2(a+b\,x)]\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\frac{3}{8}\,i\,\text{Sin}[2(a+b\,x)]^2\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{1}{8}\,\text{Sin}[2(a+b\,x)]^3\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\text{Cos}[3(a+b\,x)]$$

$$\left(\frac{1}{8}\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,i\,\text{Sin}[2(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{3}{8}\,\text{Sin}[2(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n-\frac{1}{8}\,i\,\text{Sin}[2(a+b\,x)]^3\,\text{Tan}[a+b\,x]^n\right)+$$

$$\text{Cos}[2(a+b\,x)]^3\left(\frac{1}{8}\,\text{Cos}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{1}{8}\,i\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n\right)+$$

$$\text{Cos}[2(a+b\,x)]^2\left(-\frac{3}{8}\,i\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,\text{Sin}[2(a+b\,x)]\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\right.$$

$$\left.\text{Cos}[3(a+b\,x)]\left(\frac{3}{8}\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,i\,\text{Sin}[2(a+b\,x)]\,\text{Tan}[a+b\,x]^n\right)\right)+\text{Cos}[2(a+b\,x)]$$

$$\left(-\frac{3}{8}\,i\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,\text{Sin}[2(a+b\,x)]\,\text{Sin}[3(a+b\,x)]\,\text{Tan}[a+b\,x]^n+\frac{3}{8}\,i\,\text{Sin}[2(a+b\,x)]^2\,\text{Sin}[3(a+b\,x)]\right.$$

$$\left.\left.\text{Tan}[a+b\,x]^n+\text{Cos}[3(a+b\,x)]\left(\frac{3}{8}\,\text{Tan}[a+b\,x]^n+\frac{3}{4}\,i\,\text{Sin}[2(a+b\,x)]\,\text{Tan}[a+b\,x]^n-\frac{3}{8}\,\text{Sin}[2(a+b\,x)]^2\,\text{Tan}[a+b\,x]^n\right)\right)\right)\Big/$$

$$\left(b\,(1+n)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^4\left(\frac{1}{(1+n)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^5}\,2^{3+n}\,(3+n)\,\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right.\right.$$

$$\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2}\right)^n\left(\left(\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^3\right)\Big/\right.$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\left(\mathrm{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big)-$$

$$\left(6\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^2\right)\Big/\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,\right.\right.$$

$$2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big]+2\left(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)+$$

$$\left(12\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)\Big/\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,\right.\right.$$

$$3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big]+2\left(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)-$$

$$\left(8\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\Big/\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\right.\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\Big]+2\left(-4\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)\right)-$$

$$\frac{1}{(1+n)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^4}\,2^n\,(3+n)\,\mathrm{Sec}\left[\frac{1}{2}(a+b\,x)\right]^2\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2}\right)^n$$

$$\left(\left(\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right)^3\right)\Big/\right.$$

$$\left((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2\right]-2\left(\mathrm{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b\,x)\right]^2,\right.\right.\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(6\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,\right.$$

$$2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-2\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

$$n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)+$$

$$\left(12\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)\right)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,\right.$$

$$3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-3\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

$$n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(8\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\right.$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-4\,\mathrm{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+$$

$$n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)-$$

$$\frac{1}{(1+n)\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^4}\,2^{1+n}\,n\,(3+n)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^{-1+n}$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2}{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2}-\frac{\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)}\right)$$

$$\Bigg(\left(\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\right)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-2\Big(\mathrm{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-n\,\mathrm{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\left(6\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right)\Big/\Big((3+n)\,\mathrm{AppellF1}\left[\frac{1+n}{2},n,\right.$$

$$2,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 2,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)+$$

$$\Big(12\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)\Big/\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,$$

$$3,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 4,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\Big(8\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 4,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\Big/\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 4,\ \frac{3+n}{2},$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-4\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 5,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 4,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)\Big)-$$

$$\frac{1}{(1+n)\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^4}\,2^{1+n}(3+n)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(a+b x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2}\right)^n$$

$$\Big(\Big(3\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 1,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Big(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)^2\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 1,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-2\Big(\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 2,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 1,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)+$$

$$\Big(\Big(-1/(3+n)(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\ n,\ 2,\ 1+\frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]+1/(3+n)n(1+n)\,\text{AppellF1}\Big[1+\frac{1+n}{2},\ 1+n,\ 1,\ 1+\frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)\Big(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)^3\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 1,\ \frac{3+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-2\Big(\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 2,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]-n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 1,\ \frac{5+n}{2},\ \text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\ -\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)-$$

$$\Big(12\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 2,\ \frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]$$

$$\Big(1+\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)\Big)\Big/\ \Big((3+n)\ \text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 2,\ \frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$2\ \Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 2,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)-$$

$$\Big(6\ \Big(-1\,/\,(3+n)\,2\ (1+n)\ \text{AppellF1}\Big[1+\frac{1+n}{2},\ n,\ 3,\ 1+\frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]+1\,/\,(3+n)\,n\ (1+n)\ \text{AppellF1}\Big[1+\frac{1+n}{2},\ 1+n,\ 2,\ 1+\frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]\Big)\ \Big(1+\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)^2\Big)\Big/\ \Big((3+n)\ \text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 2,\ \frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+2\ \Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 2,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)+$$

$$\Big(12\,\text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]\Big)\Big/$$

$$\Big((3+n)\ \text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$2\ \Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 4,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)+$$

$$\Big(12\ \Big(-1\,/\,(3+n)\,3\ (1+n)\ \text{AppellF1}\Big[1+\frac{1+n}{2},\ n,\ 4,\ 1+\frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\ \text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]+1\,/\,(3+n)\,n\ (1+n)\ \text{AppellF1}\Big[1+\frac{1+n}{2},\ 1+n,\ 3,\ 1+\frac{3+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]\Big)\ \Big(1+\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)\Big)\Big/\ \Big((3+n)\ \text{AppellF1}\Big[\frac{1+n}{2},\ n,\ 3,\ \frac{3+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+2\ \Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},\ n,\ 4,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]+$$

$$n\,\text{AppellF1}\Big[\frac{3+n}{2},\ 1+n,\ 3,\ \frac{5+n}{2},\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2,\ -\text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big]\Big)\ \text{Tan}\Big[\frac{1}{2}\ (a+b\,x)\Big]^2\Big)-$$

$$\left(8\left(-1/(3+n)4(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},n,5,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\right.\right.$$
$$\text{Tan}\left[\frac{1}{2}(a+b x)\right]+1/(3+n)n(1+n)\,\text{AppellF1}\left[1+\frac{1+n}{2},1+n,4,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]$$
$$\left.\left.\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right)\Big/\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,4,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[\frac{3+n}{2},n,5,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]+\right.$$
$$\left.\left.n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,4,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)-$$
$$\left(\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^3\right.$$
$$\left(-2\left(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\right.\right.\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\left(-\frac{1}{3+n}(1+n)\,\text{AppellF1}\left[\right.\right.$$
$$1+\frac{1+n}{2},n,2,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\left.\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}n(1+n)$$
$$\left.\text{AppellF1}\left[1+\frac{1+n}{2},1+n,1,1+\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)-$$
$$2\,\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\left(-\frac{1}{5+n}2(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},n,3,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,2,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]-n\left(-\frac{1}{5+n}(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},1+n,2,1+\frac{5+n}{2},\right.\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)(3+n)\,\text{AppellF1}\left[1+\frac{3+n}{2},\right.$$
$$\left.\left.\left.\left.\left.2+n,1,1+\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(a+b x)\right]^2\text{Tan}\left[\frac{1}{2}(a+b x)\right]\right)\right)\right)\right)\right)\Big/$$
$$\left((3+n)\,\text{AppellF1}\left[\frac{1+n}{2},n,1,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-2\left(\text{AppellF1}\left[\frac{3+n}{2},n,2,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,\right.\right.\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]-n\,\text{AppellF1}\left[\frac{3+n}{2},1+n,1,\frac{5+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2+$$
$$\left(6\,\text{AppellF1}\left[\frac{1+n}{2},n,2,\frac{3+n}{2},\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(a+b x)\right]^2\right)^2\right.$$

$$\Big(2\,\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+(3+n)\,\Big(-\frac{1}{3+n}2\,(1+n)\,\text{AppellF1}\Big[$$

$$1+\frac{1+n}{2},\,n,\,3,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+\frac{1}{3+n}n\,(1+n)$$

$$\text{AppellF1}\Big[1+\frac{1+n}{2},\,1+n,\,2,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\Big(-2\,\Big(-\frac{1}{5+n}3\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,n,\,4,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+\frac{1}{5+n}n\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,3,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Big)+n\,\Big(-\frac{1}{5+n}2\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,3,\,1+\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+\frac{1}{5+n}(1+n)\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,\,2,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,2,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]+2\,\Big(-2\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,3,\,\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,2,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\Big)$$

$$\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big)^2-\Big(12\,\text{AppellF1}\Big[\frac{1+n}{2},\,n,\,3,\,\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big)$$

$$\Big(2\,\Big(-3\,\text{AppellF1}\Big[\frac{3+n}{2},\,n,\,4,\,\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]+n\,\text{AppellF1}\Big[\frac{3+n}{2},\,1+n,\,3,\,\frac{5+n}{2},$$

$$\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+(3+n)\,\Big(-\frac{1}{3+n}3\,(1+n)\,\text{AppellF1}\Big[$$

$$1+\frac{1+n}{2},\,n,\,4,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+\frac{1}{3+n}n\,(1+n)$$

$$\text{AppellF1}\Big[1+\frac{1+n}{2},\,1+n,\,3,\,1+\frac{3+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\Big(-3\,\Big(-\frac{1}{5+n}4\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,n,\,5,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]+\frac{1}{5+n}n\,(3+n)\,\text{AppellF1}\Big[1+\frac{3+n}{2},\,1+n,\,4,\,1+\frac{5+n}{2},\,\text{Tan}\Big[\frac{1}{2}\,(a+b\,x)\Big]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)+n\Big(-\frac{1}{5+n}3\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},1+n,4,1+\frac{5+n}{2},$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,3,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\Big[\frac{1+n}{2},n,3,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-3\,\mathrm{AppellF1}\Big[\frac{3+n}{2},n,4,\frac{5+n}{2},$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{3+n}{2},1+n,3,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big)^2+\Big(8\,\mathrm{AppellF1}\Big[\frac{1+n}{2},n,4,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]$$

$$\Big(2\Big(-4\,\mathrm{AppellF1}\Big[\frac{3+n}{2},n,5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+n\,\mathrm{AppellF1}\Big[\frac{3+n}{2},1+n,4,\frac{5+n}{2},$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\Big)\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+(3+n)\,\Big(-\frac{1}{3+n}4\,(1+n)\,\mathrm{AppellF1}\Big[$$

$$1+\frac{1+n}{2},n,5,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{3+n}n\,(1+n)$$

$$\mathrm{AppellF1}\Big[1+\frac{1+n}{2},1+n,4,1+\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)+$$

$$2\,\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big(-4\Big(-\frac{1}{5+n}5\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},n,6,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]$$

$$\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}n\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)+n\Big(-\frac{1}{5+n}4\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},1+n,5,1+\frac{5+n}{2},$$

$$\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]+\frac{1}{5+n}(1+n)\,(3+n)\,\mathrm{AppellF1}\Big[1+\frac{3+n}{2},$$

$$2+n,4,1+\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]\,\mathrm{Sec}\left[\frac{1}{2}(a+b x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n)\,\mathrm{AppellF1}\Big[\frac{1+n}{2},n,4,\frac{3+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+2\Big(-4\,\mathrm{AppellF1}\Big[\frac{3+n}{2},n,$$

$$5,\frac{5+n}{2},\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(a+b x)\right]^2\Big]+$$

$$n\,\text{AppellF1}\left[\frac{3+n}{2},\,1+n,\,4,\,\frac{5+n}{2},\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\right]\,\text{Tan}\left[\frac{1}{2}\,(a+b\,x)\right]^2\Big)^2\Big)\Big)\Big)\Big)$$

- **Problem 374: Result more than twice size of optimal antiderivative.**

$$\int (b\,\text{Csc}[e+f\,x])^m\,\text{Tan}[e+f\,x]^3\,dx$$

Optimal (type 5, 40 leaves, 2 steps):

$$-\frac{(b\,\text{Csc}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[2,\,\frac{m}{2},\,\frac{2+m}{2},\,\text{Csc}[e+f\,x]^2\right]}{f\,m}$$

Result (type 5, 108 leaves):

$$\frac{1}{f\,(-2+m)}(b\,\text{Csc}[e+f\,x])^m\left(\text{Hypergeometric2F1}\left[1-\frac{m}{2},\,1-\frac{m}{2},\,2-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2\right]-\text{Hypergeometric2F1}\left[1-\frac{m}{2},\,-\frac{m}{2},\,2-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2\right]\right)$$
$$\left(\text{Sec}[e+f\,x]^2\right)^{1-\frac{m}{2}}\,\text{Sin}[e+f\,x]^2$$

- **Problem 379: Result more than twice size of optimal antiderivative.**

$$\int (b\,\text{Csc}[e+f\,x])^m\,\text{Tan}[e+f\,x]^4\,dx$$

Optimal (type 5, 63 leaves, 1 step):

$$\frac{1}{3\,f}(b\,\text{Csc}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\,\frac{1}{2}\,(-3+m),\,-\frac{1}{2},\,\text{Cos}[e+f\,x]^2\right]\,\left(\text{Sin}[e+f\,x]^2\right)^{\frac{1}{2}\,(-3+m)}\,\text{Tan}[e+f\,x]^3$$

Result (type 5, 171 leaves):

$$-\frac{1}{f\,(-3+m)\,(-1+m)}(b\,\text{Csc}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\text{Tan}[e+f\,x]$$
$$\Bigg((-3+m)\,\text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{m}{2},\,1-\frac{m}{2},\,\frac{3}{2}-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2\right]-(-3+m)\,\text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{m}{2},\,-\frac{m}{2},\,\frac{3}{2}-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2\right]+$$
$$(-1+m)\,\text{Hypergeometric2F1}\left[\frac{3}{2}-\frac{m}{2},\,-\frac{m}{2},\,\frac{5}{2}-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]^2\Bigg)$$

- **Problem 381: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^2\,(b\,\text{Csc}[e+f\,x])^m\,dx$$

Optimal (type 5, 63 leaves, 1 step):

$$-\frac{\text{Cot}[e+f\,x]^3\,(b\,\text{Csc}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[\frac{3}{2},\,\frac{3+m}{2},\,\frac{5}{2},\,\text{Cos}[e+f\,x]^2\right]\,\left(\text{Sin}[e+f\,x]^2\right)^{\frac{3+m}{2}}}{3\,f}$$

Result (type 5, 186 leaves):

$$-\frac{1}{2 f\left(-1+m^2\right)}(b \operatorname{Csc}[e+f x])^m\left(-4(1+m) \text{Hypergeometric2F1}\left[1-m,\frac{1}{2}-\frac{m}{2},\frac{3}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$(-1+m) \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]^2 \text{Hypergeometric2F1}\left[-\frac{1}{2}-\frac{m}{2},-m,\frac{1}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$\left.(1+m) \text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{m}{2},-m,\frac{3}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\left(\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-m} \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]$$

- **Problem 382: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[e+f x]^4 (b \operatorname{Csc}[e+f x])^m \, dx$$

Optimal (type 5, 63 leaves, 1 step) :

$$-\frac{\operatorname{Cot}[e+f x]^5 (b \operatorname{Csc}[e+f x])^m \text{Hypergeometric2F1}\left[\frac{5}{2},\frac{5+m}{2},\frac{7}{2},\operatorname{Cos}[e+f x]^2\right]\left(\operatorname{Sin}[e+f x]^2\right)^{\frac{5+m}{2}}}{5 f}$$

Result (type 5, 302 leaves) :

$$\frac{1}{8 f} \operatorname{Cot}\left[\frac{1}{2}(e+f x)\right]^3 (b \operatorname{Csc}[e+f x])^m\left(\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-m}\left(-\frac{\text{Hypergeometric2F1}\left[-\frac{3}{2}-\frac{m}{2},-m,-\frac{1}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{3+m}+\right.$$
$$\frac{5 \text{Hypergeometric2F1}\left[-\frac{1}{2}-\frac{m}{2},-m,\frac{1}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+m}+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^4$$
$$\left(-\frac{16 \text{Hypergeometric2F1}\left[1-m,\frac{1}{2}-\frac{m}{2},\frac{3}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{-1+m}+\frac{5 \text{Hypergeometric2F1}\left[\frac{1}{2}-\frac{m}{2},-m,\frac{3}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{-1+m}+\right.$$
$$\left.\left.\frac{\text{Hypergeometric2F1}\left[\frac{3}{2}-\frac{m}{2},-m,\frac{5}{2}-\frac{m}{2},-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{3-m}\right)\right)$$

- **Problem 387: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (a \operatorname{Csc}[e+f x])^m (b \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 5, 89 leaves, 3 steps) :

$$\frac{1}{b f(1-m+n)}\left(\operatorname{Cos}[e+f x]^2\right)^{\frac{1+n}{2}}(a \operatorname{Csc}[e+f x])^m \text{Hypergeometric2F1}\left[\frac{1+n}{2},\frac{1}{2}(1-m+n),\frac{1}{2}(3-m+n),\operatorname{Sin}[e+f x]^2\right](b \operatorname{Tan}[e+f x])^{1+n}$$

Result (type 6, 2348 leaves) :

$$-\left(\left((-3+m-n) \text{AppellF1}\left[\frac{1}{2}(1-m+n),n,1-m,\frac{1}{2}(3-m+n),\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.\right.$$

$$\mathrm{Csc}[e+f x]^{-1+m}\ (a\ \mathrm{Csc}[e+f x])^m\ \mathrm{Tan}[e+f x]^n\ (b\ \mathrm{Tan}[e+f x])^n\Big)\Big/$$

$$\Big(f\ (-1+m-n)\ \Big((-3+m-n)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]-$$

$$2\ \Big((-1+m)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ n,\ 2-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]+$$

$$n\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ 1+n,\ 1-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\Big)\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big)$$

$$\Big(-\Big(\Big((-3+m-n)\ n\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\ \mathrm{Csc}[e+f x]^{-1+m}$$

$$\mathrm{Sec}[e+f x]^2\ \mathrm{Tan}[e+f x]^{-1+n}\Big)\Big/\ \Big((-1+m-n)\ \Big((-3+m-n)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]-2\ \Big((-1+m)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ n,\ 2-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]+$$

$$n\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ 1+n,\ 1-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\Big)\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big)\Big)\Big)+$$

$$\Big((-1+m)\ (-3+m-n)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\ \mathrm{Cos}[e+f x]\ \mathrm{Csc}[e+f x]^m$$

$$\mathrm{Tan}[e+f x]^n\Big)\Big/\ \Big((-1+m-n)\ \Big((-3+m-n)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]-$$

$$2\ \Big((-1+m)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ n,\ 2-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]+n$$

$$\mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ 1+n,\ 1-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\Big)\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big)\Big)-$$

$$\Big((-3+m-n)\ \mathrm{Csc}[e+f x]^{-1+m}\ \Big(-\frac{1}{3-m+n}(1-m)\ (1-m+n)\ \mathrm{AppellF1}\Big[1+\frac{1}{2}\ (1-m+n),\ n,\ 2-m,\ 1+\frac{1}{2}\ (3-m+n),$$

$$\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\ \mathrm{Sec}\Big[\frac{1}{2}\ (e+f x)\Big]^2\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]+\frac{1}{3-m+n}n\ (1-m+n)\ \mathrm{AppellF1}\Big[1+\frac{1}{2}\ (1-m+n),$$

$$1+n,\ 1-m,\ 1+\frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\ \mathrm{Sec}\Big[\frac{1}{2}\ (e+f x)\Big]^2\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]\Big)\ \mathrm{Tan}[e+f x]^n\Big)\Big/$$

$$\Big((-1+m-n)\ \Big((-3+m-n)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (1-m+n),\ n,\ 1-m,\ \frac{1}{2}\ (3-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]-$$

$$2\ \Big((-1+m)\ \mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ n,\ 2-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]+n$$

$$\mathrm{AppellF1}\Big[\frac{1}{2}\ (3-m+n),\ 1+n,\ 1-m,\ \frac{1}{2}\ (5-m+n),\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2,\ -\mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big]\Big)\ \mathrm{Tan}\Big[\frac{1}{2}\ (e+f x)\Big]^2\Big)\Big)+$$

$$\left((-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),n,1-m,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Csc}[e+f x]^{-1+m}\right.$$
$$\left(-2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),n,2-m,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\right.\right.$$
$$\left.\text{AppellF1}\left[\frac{1}{2}(3-m+n),1+n,1-m,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$
$$(-3+m-n)\left(-\frac{1}{3-m+n}(1-m)(1-m+n)\,\text{AppellF1}\left[1+\frac{1}{2}(1-m+n),n,2-m,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3-m+n}n(1-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(1-m+n),$$
$$\left.1+n,1-m,1+\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)-$$
$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big((-1+m)\Big(-\frac{1}{5-m+n}(2-m)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),n,3-m,1+\frac{1}{2}(5-m+n),$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}n(3-m+n)\,\text{AppellF1}\Big[1+$$
$$\frac{1}{2}(3-m+n),1+n,2-m,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)+$$
$$n\Big(-\frac{1}{5-m+n}(1-m)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),1+n,2-m,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5-m+n}(1+n)(3-m+n)\,\text{AppellF1}\Big[1+\frac{1}{2}(3-m+n),2+n,$$
$$\left.1-m,1+\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big)\Big)\text{Tan}[e+f x]^n\right)\Big/$$
$$\Big((-1+m-n)\Big((-3+m-n)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n),n,1-m,\frac{1}{2}(3-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$
$$2\Big((-1+m)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),n,2-m,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$
$$n\,\text{AppellF1}\left[\frac{1}{2}(3-m+n),1+n,1-m,\frac{1}{2}(5-m+n),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2\Big)\Big)\Big)$$

Test results for the 63 problems in "4.3.10 (c+d x)^m (a+b tan)^n.m"

- **Problem 3: Result more than twice size of optimal antiderivative.**

$$\int x \operatorname{Tan}[a+b x] \, dx$$

Optimal (type 4, 54 leaves, 4 steps):

$$\frac{i x^2}{2} - \frac{x \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b} + \frac{i \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{2 b^2}$$

Result (type 4, 175 leaves):

$$-\Bigg(\operatorname{Csc}[a] \Bigg(b^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[a]]} x^2 - 1 \Big/ \left(\sqrt{1+\operatorname{Cot}[a]^2}\right) \operatorname{Cot}[a] \left(i b x \left(-\pi - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) - \pi \operatorname{Log}\left[1+e^{-2 i b x}\right] - 2 \left(b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) \operatorname{Log}\left[1-e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right] + \pi \operatorname{Log}[\operatorname{Cos}[b x]] - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{Log}[\operatorname{Sin}[b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]]] + i \operatorname{PolyLog}\left[2, e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)\Bigg) \operatorname{Sec}[a]\Bigg) \Big/ \left(2 b^2 \sqrt{\operatorname{Csc}[a]^2 \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)}\right) + \frac{1}{2} x^2 \operatorname{Tan}[a]$$

- **Problem 7: Result more than twice size of optimal antiderivative.**

$$\int x^2 \operatorname{Tan}[a+b x]^2 \, dx$$

Optimal (type 4, 73 leaves, 6 steps):

$$-\frac{i x^2}{b} - \frac{x^3}{3} + \frac{2 x \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b^2} - \frac{i \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{b^3} + \frac{x^2 \operatorname{Tan}[a+b x]}{b}$$

Result (type 4, 189 leaves):

$$-\frac{x^3}{3} + \Bigg(\operatorname{Csc}[a] \Bigg(b^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[a]]} x^2 - 1 \Big/ \left(\sqrt{1+\operatorname{Cot}[a]^2}\right) \operatorname{Cot}[a] \left(i b x \left(-\pi - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) - \pi \operatorname{Log}\left[1+e^{-2 i b x}\right] - 2 \left(b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]\right) \operatorname{Log}\left[1-e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right] + \pi \operatorname{Log}[\operatorname{Cos}[b x]] - 2 \operatorname{ArcTan}[\operatorname{Cot}[a]] \operatorname{Log}[\operatorname{Sin}[b x - \operatorname{ArcTan}[\operatorname{Cot}[a]]]] + i \operatorname{PolyLog}\left[2, e^{2 i (b x - \operatorname{ArcTan}[\operatorname{Cot}[a]])}\right]\right)\Bigg) \operatorname{Sec}[a]\Bigg) \Big/ \left(b^3 \sqrt{\operatorname{Csc}[a]^2 \left(\operatorname{Cos}[a]^2 + \operatorname{Sin}[a]^2\right)}\right) + \frac{x^2 \operatorname{Sec}[a] \operatorname{Sec}[a+b x] \operatorname{Sin}[b x]}{b}$$

- **Problem 13: Result more than twice size of optimal antiderivative.**

$$\int x \operatorname{Tan}[a+b x]^3 \, dx$$

Optimal (type 4, 90 leaves, 7 steps):

$$\frac{x}{2 b} - \frac{i x^2}{2} + \frac{x \operatorname{Log}\left[1+e^{2 i (a+b x)}\right]}{b} - \frac{i \operatorname{PolyLog}\left[2, -e^{2 i (a+b x)}\right]}{2 b^2} - \frac{\operatorname{Tan}[a+b x]}{2 b^2} + \frac{x \operatorname{Tan}[a+b x]^2}{2 b}$$

Result (type 4, 210 leaves):

$$\frac{x\,\mathrm{Sec}[a+b\,x]^2}{2\,b}+\Big(\mathrm{Csc}[a]\,\Big(b^2\,e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[a]]}\,x^2-1\Big/\Big(\sqrt{1+\mathrm{Cot}[a]^2}\Big)\mathrm{Cot}[a]\,\big(i\,b\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[a]])-\pi\,\mathrm{Log}\big[1+e^{-2\,i\,b\,x}\big]-2\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])\,\mathrm{Log}\big[1-e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\big]+\pi\,\mathrm{Log}[\mathrm{Cos}[b\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[a]]\,\mathrm{Log}[\mathrm{Sin}[b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]]]]+i\,\mathrm{PolyLog}\big[2,\,e^{2\,i\,(b\,x-\mathrm{ArcTan}[\mathrm{Cot}[a]])}\big]\big)\Big)\,\mathrm{Sec}[a]\Big)\Big/\Big(2\,b^2\,\sqrt{\mathrm{Csc}[a]^2\,(\mathrm{Cos}[a]^2+\mathrm{Sin}[a]^2)}\Big)-\frac{\mathrm{Sec}[a]\,\mathrm{Sec}[a+b\,x]\,\mathrm{Sin}[b\,x]}{2\,b^2}-\frac{1}{2}\,x^2\,\mathrm{Tan}[a]$$

- **Problem 36: Result more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,x)^m}{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 98 leaves, 2 steps):

$$\frac{(c+d\,x)^{1+m}}{2\,a\,d\,(1+m)}+\frac{i\,2^{-2-m}\,e^{-2\,i\,\left(e-\frac{c\,f}{d}\right)}\,(c+d\,x)^m\,\left(\frac{i\,f\,(c+d\,x)}{d}\right)^{-m}\,\mathrm{Gamma}\left[1+m,\,\frac{2\,i\,f\,(c+d\,x)}{d}\right]}{a\,f}$$

Result (type 4, 205 leaves):

$$\left(2^{-2-m}\,(c+d\,x)^m\,\left(-\frac{i\,f\,(c+d\,x)}{d}\right)^m\,\left(\frac{f^2\,(c+d\,x)^2}{d^2}\right)^{-m}\,\mathrm{Sec}[e+f\,x]\,\left(2^{1+m}\,f\,(c+d\,x)\,\left(\frac{i\,f\,(c+d\,x)}{d}\right)^m\,\left(\mathrm{Cos}\left[e-\frac{c\,f}{d}\right]+i\,\mathrm{Sin}\left[e-\frac{c\,f}{d}\right]\right)+d\,(1+m)\,\mathrm{Gamma}\left[1+m,\,\frac{2\,i\,f\,(c+d\,x)}{d}\right]\,\left(i\,\mathrm{Cos}\left[e-\frac{c\,f}{d}\right]+\mathrm{Sin}\left[e-\frac{c\,f}{d}\right]\right)\right)\,\left(-i\,\mathrm{Cos}\left[f\,\left(\frac{c}{d}+x\right)\right]+\mathrm{Sin}\left[f\,\left(\frac{c}{d}+x\right)\right]\right)\right)\Big/\,(a\,d\,f\,(1+m)\,(-i+\mathrm{Tan}[e+f\,x]))$$

- **Problem 37: Attempted integration timed out after 120 seconds.**

$$\int\frac{(c+d\,x)^m}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 171 leaves, 4 steps):

$$\frac{(c+d\,x)^{1+m}}{4\,a^2\,d\,(1+m)}+\frac{i\,2^{-2-m}\,e^{-2\,i\,\left(e-\frac{c\,f}{d}\right)}\,(c+d\,x)^m\,\left(\frac{i\,f\,(c+d\,x)}{d}\right)^{-m}\,\mathrm{Gamma}\left[1+m,\,\frac{2\,i\,f\,(c+d\,x)}{d}\right]}{a^2\,f}+\frac{i\,4^{-2-m}\,e^{-4\,i\,\left(e-\frac{c\,f}{d}\right)}\,(c+d\,x)^m\,\left(\frac{i\,f\,(c+d\,x)}{d}\right)^{-m}\,\mathrm{Gamma}\left[1+m,\,\frac{4\,i\,f\,(c+d\,x)}{d}\right]}{a^2\,f}$$

Result (type 1, 1 leaves):

???

- **Problem 39: Result more than twice size of optimal antiderivative.**

$$\int(c+d\,x)^3\,(a+b\,\mathrm{Tan}[e+f\,x])\,dx$$

Optimal (type 4, 152 leaves, 8 steps):

$$\frac{a (c+d x)^4}{4 d}+\frac{i b (c+d x)^4}{4 d}-\frac{b (c+d x)^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{3 i b d (c+d x)^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{2 f^2}-\frac{3 b d^2 (c+d x) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}-\frac{3 i b d^3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]}{4 f^4}$$

Result (type 4, 546 leaves) :

$$\frac{1}{4 f^3} b c d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]-\frac{1}{4} i b d^3 e^{i e} \left(-x^4+\left(1+e^{-2 i e}\right) x^4-\frac{1}{2 f^4} e^{-2 i e} \left(1+e^{2 i e}\right) \left(2 f^4 x^4+4 i f^3 x^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]+6 f^2 x^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]+6 i f x \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]-3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]\right)\right) \text{Sec}[e]+\frac{1}{4} x \left(4 c^3+6 c^2 d x+4 c d^2 x^2+d^3 x^3\right) \text{Sec}[e] (a \text{Cos}[e]+b \text{Sin}[e])-\frac{b c^3 \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}-\left(3 b c^2 d \text{Csc}[e] \left(e^{-i \text{ArcTan}[\text{Cot}[e]]} f^2 x^2-1\Big/\left(\sqrt{1+\text{Cot}[e]^2}\right) \text{Cot}[e] \left(i f x (-\pi-2 \text{ArcTan}[\text{Cot}[e]])-\pi \text{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\text{ArcTan}[\text{Cot}[e]]) \text{Log}\left[1-e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]+\pi \text{Log}[\text{Cos}[f x]]-2 \text{ArcTan}[\text{Cot}[e]] \text{Log}[\text{Sin}[f x-\text{ArcTan}[\text{Cot}[e]]]]+i \text{PolyLog}\left[2,e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right)\Big/\left(2 f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right)$$

Problem 40: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^2 (a+b \text{Tan}[e+f x]) \, dx$$

Optimal (type 4, 115 leaves, 7 steps) :

$$\frac{a (c+d x)^3}{3 d}+\frac{i b (c+d x)^3}{3 d}-\frac{b (c+d x)^2 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{i b d (c+d x) \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^2}-\frac{b d^2 \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}$$

Result (type 4, 375 leaves) :

$$\frac{1}{12 f^3} b d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]+\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right) \text{Sec}[e] (a \text{Cos}[e]+b \text{Sin}[e])-\frac{b c^2 \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}-\left(b c d \text{Csc}[e] \left(e^{-i \text{ArcTan}[\text{Cot}[e]]} f^2 x^2-1\Big/\left(\sqrt{1+\text{Cot}[e]^2}\right) \text{Cot}[e] \left(i f x (-\pi-2 \text{ArcTan}[\text{Cot}[e]])-\pi \text{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\text{ArcTan}[\text{Cot}[e]]) \text{Log}\left[1-e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]+\pi \text{Log}[\text{Cos}[f x]]-2 \text{ArcTan}[\text{Cot}[e]] \text{Log}[\text{Sin}[f x-\text{ArcTan}[\text{Cot}[e]]]]+i \text{PolyLog}\left[2,e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right)\Big/\left(f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right)$$

Problem 41: Result more than twice size of optimal antiderivative.

$$\int (c+d x) (a+b \operatorname{Tan}[e+f x]) \, dx$$

Optimal (type 4, 84 leaves, 6 steps):

$$\frac{a (c+d x)^2}{2 d}+\frac{i b (c+d x)^2}{2 d}-\frac{b (c+d x) \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{i b d \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{2 f^2}$$

Result (type 4, 206 leaves):

$$a c x+\frac{1}{2} a d x^2-\frac{b c \operatorname{Log}[\operatorname{Cos}[e+f x]]}{f}-\left(b d \operatorname{Csc}[e] \left(e^{-i \operatorname{ArcTan}[\operatorname{Cot}[e]]} f^2 x^2-1\Big/\left(\sqrt{1+\operatorname{Cot}[e]^2}\right) \operatorname{Cot}[e] \left(i f x (-\pi-2 \operatorname{ArcTan}[\operatorname{Cot}[e]])-\pi \operatorname{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]]) \operatorname{Log}\left[1-e^{2 i (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[f x]]-2 \operatorname{ArcTan}[\operatorname{Cot}[e]] \operatorname{Log}[\operatorname{Sin}[f x-\operatorname{ArcTan}[\operatorname{Cot}[e]]]]+i \operatorname{PolyLog}\left[2, e^{2 i (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]])}\right]\right)\right) \operatorname{Sec}[e]\right)\Big/\left(2 f^2 \sqrt{\operatorname{Csc}[e]^2 \left(\operatorname{Cos}[e]^2+\operatorname{Sin}[e]^2\right)}\right)+\frac{1}{2} b d x^2 \operatorname{Tan}[e]$$

Problem 44: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 (a+b \operatorname{Tan}[e+f x])^2 \, dx$$

Optimal (type 4, 300 leaves, 15 steps):

$$-\frac{i b^2 (c+d x)^3}{f}+\frac{a^2 (c+d x)^4}{4 d}+\frac{i a b (c+d x)^4}{2 d}-\frac{b^2 (c+d x)^4}{4 d}+\frac{3 b^2 d (c+d x)^2 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f^2}-\frac{2 a b (c+d x)^3 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f}-\frac{3 i b^2 d^2 (c+d x) \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^3}+\frac{3 i a b d (c+d x)^2 \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^2}+\frac{3 b^2 d^3 \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^4}-\frac{3 a b d^2 (c+d x) \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{f^3}-\frac{3 i a b d^3 \operatorname{PolyLog}\left[4,-e^{2 i (e+f x)}\right]}{2 f^4}+\frac{b^2 (c+d x)^3 \operatorname{Tan}[e+f x]}{f}$$

Result (type 4, 1347 leaves):

$$-\frac{1}{4 f^4} b^2 d^3 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x + 3 i \left(1 + e^{2 i e}\right) \text{Log}\left[1 + e^{2 i (e+f x)}\right]\right) + 6 i \left(1 + e^{2 i e}\right) f x \,\text{PolyLog}\left[2, -e^{2 i (e+f x)}\right] - 3 \left(1 + e^{2 i e}\right) \text{PolyLog}\left[3, -e^{2 i (e+f x)}\right]\right) \text{Sec}[e] + \frac{1}{2 f^3} a b c d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x + 3 i \left(1 + e^{2 i e}\right) \text{Log}\left[1 + e^{2 i (e+f x)}\right]\right) + 6 i \left(1 + e^{2 i e}\right) f x \,\text{PolyLog}\left[2, -e^{2 i (e+f x)}\right] - 3 \left(1 + e^{2 i e}\right) \text{PolyLog}\left[3, -e^{2 i (e+f x)}\right]\right) \text{Sec}[e] - \frac{1}{2} i a b d^3 e^{i e} \left(-x^4 + \left(1 + e^{-2 i e}\right) x^4 - \frac{1}{2 f^4} e^{-2 i e} \left(1 + e^{2 i e}\right) \left(2 f^4 x^4 + 4 i f^3 x^3 \text{Log}\left[1 + e^{2 i (e+f x)}\right] + 6 f^2 x^2 \text{PolyLog}\left[2, -e^{2 i (e+f x)}\right] + 6 i f x \,\text{PolyLog}\left[3, -e^{2 i (e+f x)}\right] - 3 \,\text{PolyLog}\left[4, -e^{2 i (e+f x)}\right]\right)\right) \text{Sec}[e] +$$

$$\frac{3 b^2 c^2 d \,\text{Sec}[e] \left(\text{Cos}[e] \,\text{Log}[\text{Cos}[e] \,\text{Cos}[f x] - \text{Sin}[e] \,\text{Sin}[f x]] + f x \,\text{Sin}[e]\right)}{f^2 \left(\text{Cos}[e]^2 + \text{Sin}[e]^2\right)} - \frac{2 a b c^3 \,\text{Sec}[e] \left(\text{Cos}[e] \,\text{Log}[\text{Cos}[e] \,\text{Cos}[f x] - \text{Sin}[e] \,\text{Sin}[f x]] + f x \,\text{Sin}[e]\right)}{f \left(\text{Cos}[e]^2 + \text{Sin}[e]^2\right)} +$$

$$\left(3 b^2 c d^2 \,\text{Csc}[e] \left(e^{-i \,\text{ArcTan}[\text{Cot}[e]]} f^2 x^2 - 1 \Big/ \left(\sqrt{1 + \text{Cot}[e]^2}\right) \text{Cot}[e] \left(i f x \left(-\pi - 2 \,\text{ArcTan}[\text{Cot}[e]]\right) - \pi \,\text{Log}\left[1 + e^{-2 i f x}\right] - 2 \left(f x - \text{ArcTan}[\text{Cot}[e]]\right) \text{Log}\left[1 - e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right] + \pi \,\text{Log}[\text{Cos}[f x]] - 2 \,\text{ArcTan}[\text{Cot}[e]] \,\text{Log}[\text{Sin}[f x - \text{ArcTan}[\text{Cot}[e]]]] + i \,\text{PolyLog}\left[2, e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right) \Big/ \left(f^3 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2 + \text{Sin}[e]^2\right)}\right) - \left(3 a b c^2 d \,\text{Csc}[e] \left(e^{-i \,\text{ArcTan}[\text{Cot}[e]]} f^2 x^2 - 1 \Big/ \left(\sqrt{1 + \text{Cot}[e]^2}\right) \text{Cot}[e] \left(i f x \left(-\pi - 2 \,\text{ArcTan}[\text{Cot}[e]]\right) - \pi \,\text{Log}\left[1 + e^{-2 i f x}\right] - 2 \left(f x - \text{ArcTan}[\text{Cot}[e]]\right) \text{Log}\left[1 - e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right] + \pi \,\text{Log}[\text{Cos}[f x]] - 2 \,\text{ArcTan}[\text{Cot}[e]] \,\text{Log}[\text{Sin}[f x - \text{ArcTan}[\text{Cot}[e]]]] + i \,\text{PolyLog}\left[2, e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right) \Big/ \left(f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2 + \text{Sin}[e]^2\right)}\right) +$$

$$\frac{1}{8 f} \text{Sec}[e] \,\text{Sec}[e + f x] \left(4 a^2 c^3 f x \,\text{Cos}[f x] - 4 b^2 c^3 f x \,\text{Cos}[f x] + 6 a^2 c^2 d f x^2 \,\text{Cos}[f x] - 6 b^2 c^2 d f x^2 \,\text{Cos}[f x] + 4 a^2 c d^2 f x^3 \,\text{Cos}[f x] - 4 b^2 c d^2 f x^3 \,\text{Cos}[f x] + a^2 d^3 f x^4 \,\text{Cos}[f x] - b^2 d^3 f x^4 \,\text{Cos}[f x] + 4 a^2 c^3 f x \,\text{Cos}[2 e + f x] - 4 b^2 c^3 f x \,\text{Cos}[2 e + f x] + 6 a^2 c^2 d f x^2 \,\text{Cos}[2 e + f x] - 6 b^2 c^2 d f x^2 \,\text{Cos}[2 e + f x] + 4 a^2 c d^2 f x^3 \,\text{Cos}[2 e + f x] - 4 b^2 c d^2 f x^3 \,\text{Cos}[2 e + f x] + a^2 d^3 f x^4 \,\text{Cos}[2 e + f x] - b^2 d^3 f x^4 \,\text{Cos}[2 e + f x] + 8 b^2 c^3 \,\text{Sin}[f x] + 24 b^2 c^2 d x \,\text{Sin}[f x] - 8 a b c^3 f x \,\text{Sin}[f x] + 24 b^2 c d^2 x^2 \,\text{Sin}[f x] - 12 a b c^2 d f x^2 \,\text{Sin}[f x] + 8 b^2 d^3 x^3 \,\text{Sin}[f x] - 8 a b c d^2 f x^3 \,\text{Sin}[f x] - 2 a b d^3 f x^4 \,\text{Sin}[f x] + 8 a b c^3 f x \,\text{Sin}[2 e + f x] + 12 a b c^2 d f x^2 \,\text{Sin}[2 e + f x] + 8 a b c d^2 f x^3 \,\text{Sin}[2 e + f x] + 2 a b d^3 f x^4 \,\text{Sin}[2 e + f x]\right)$$

- **Problem 45: Result more than twice size of optimal antiderivative.**

$$\int (c + d x)^2 \left(a + b \,\text{Tan}[e + f x]\right)^2 \,dx$$

Optimal (type 4, 229 leaves, 13 steps) :

$$-\frac{i b^2 (c+d x)^2}{f}+\frac{a^2 (c+d x)^3}{3 d}+\frac{2 i a b (c+d x)^3}{3 d}-\frac{b^2 (c+d x)^3}{3 d}+\frac{2 b^2 d (c+d x) \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f^2}-\frac{2 a b (c+d x)^2 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f}-\frac{i b^2 d^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^3}+\frac{2 i a b d (c+d x) \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^2}-\frac{a b d^2 \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{f^3}+\frac{b^2 (c+d x)^2 \text{Tan}[e+f x]}{f}$$

Result (type 4, 656 leaves):

$$\frac{1}{6 f^3} a b d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]+\frac{1}{3} x \left(3 c^2+3 c d x+d^2 x^2\right) \text{Sec}[e] \left(a^2 \text{Cos}[e]-b^2 \text{Cos}[e]+2 a b \text{Sin}[e]\right)+$$

$$\frac{2 b^2 c d \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}-\frac{2 a b c^2 \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}+$$

$$\left(b^2 d^2 \text{Csc}[e] \left(e^{-i \text{ArcTan}[\text{Cot}[e]]} f^2 x^2-1\Big/\left(\sqrt{1+\text{Cot}[e]^2}\right)\text{Cot}[e] \left(i f x (-\pi-2 \text{ArcTan}[\text{Cot}[e]])-\pi \text{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\text{ArcTan}[\text{Cot}[e]]) \text{Log}\left[1-e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]+\pi \text{Log}[\text{Cos}[f x]]-2 \text{ArcTan}[\text{Cot}[e]] \text{Log}[\text{Sin}[f x-\text{ArcTan}[\text{Cot}[e]]]]+i \text{PolyLog}\left[2,e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right)\Big/\left(f^3 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right)-$$

$$\left(2 a b c d \text{Csc}[e] \left(e^{-i \text{ArcTan}[\text{Cot}[e]]} f^2 x^2-1\Big/\left(\sqrt{1+\text{Cot}[e]^2}\right)\text{Cot}[e] \left(i f x (-\pi-2 \text{ArcTan}[\text{Cot}[e]])-\pi \text{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\text{ArcTan}[\text{Cot}[e]]) \text{Log}\left[1-e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]+\pi \text{Log}[\text{Cos}[f x]]-2 \text{ArcTan}[\text{Cot}[e]] \text{Log}[\text{Sin}[f x-\text{ArcTan}[\text{Cot}[e]]]]+i \text{PolyLog}\left[2,e^{2 i (f x-\text{ArcTan}[\text{Cot}[e]])}\right]\right)\right) \text{Sec}[e]\right)\Big/\left(f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right)+\frac{\text{Sec}[e] \text{Sec}[e+f x] \left(b^2 c^2 \text{Sin}[f x]+2 b^2 c d x \text{Sin}[f x]+b^2 d^2 x^2 \text{Sin}[f x]\right)}{f}$$

Problem 49: Result more than twice size of optimal antiderivative.

$$\int (c+d x)^3 (a+b \text{Tan}[e+f x])^3 \, dx$$

Optimal (type 4, 612 leaves, 28 steps):

$$\frac{3 i b^3 d (c+d x)^2}{2 f^2}-\frac{3 i a b^2 (c+d x)^3}{f}+\frac{b^3 (c+d x)^3}{2 f}+\frac{a^3 (c+d x)^4}{4 d}+\frac{3 i a^2 b (c+d x)^4}{4 d}-\frac{3 a b^2 (c+d x)^4}{4 d}-\frac{i b^3 (c+d x)^4}{4 d}-\frac{3 b^3 d^2 (c+d x) \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f^3}+\frac{9 a b^2 d (c+d x)^2 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f^2}-\frac{3 a^2 b (c+d x)^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{b^3 (c+d x)^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{3 i b^3 d^3 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{2 f^4}-\frac{9 i a b^2 d^2 (c+d x) \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^3}+\frac{9 i a^2 b d (c+d x)^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{2 f^2}-\frac{3 i b^3 d (c+d x)^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{2 f^2}+\frac{9 a b^2 d^3 \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^4}-\frac{9 a^2 b d^2 (c+d x) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}+\frac{3 b^3 d^2 (c+d x) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}-\frac{9 i a^2 b d^3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]}{4 f^4}+\frac{3 i b^3 d^3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]}{4 f^4}-\frac{3 b^3 d (c+d x)^2 \text{Tan}[e+f x]}{2 f^2}+\frac{3 a b^2 (c+d x)^3 \text{Tan}[e+f x]}{f}+\frac{b^3 (c+d x)^3 \text{Tan}[e+f x]^2}{2 f}$$

Result (type 4, 2607 leaves) :

$$-\frac{1}{4 f^4}3 a b^2 d^3 e^{-i e}\left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]+\frac{1}{4 f^3}3 a^2 b c d^2 e^{-i e}\left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]-\frac{1}{4 f^3}b^3 c d^2 e^{-i e}\left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \text{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \text{Sec}[e]-\frac{3}{4} i a^2 b d^3 e^{i e}\left(-x^4+\left(1+e^{-2 i e}\right) x^4-\frac{1}{2 f^4}e^{-2 i e}\left(1+e^{2 i e}\right)\left(2 f^4 x^4+4 i f^3 x^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]+6 f^2 x^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]+6 i f x \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]-3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]\right)\right) \text{Sec}[e]+\frac{1}{4} i b^3 d^3 e^{i e}\left(-x^4+\left(1+e^{-2 i e}\right) x^4-\frac{1}{2 f^4}e^{-2 i e}\left(1+e^{2 i e}\right)\left(2 f^4 x^4+4 i f^3 x^3 \text{Log}\left[1+e^{2 i (e+f x)}\right]+6 f^2 x^2 \text{PolyLog}\left[2,-e^{2 i (e+f x)}\right]+6 i f x \text{PolyLog}\left[3,-e^{2 i (e+f x)}\right]-3 \text{PolyLog}\left[4,-e^{2 i (e+f x)}\right]\right)\right) \text{Sec}[e]+\frac{\left(b^3 c^3+3 b^3 c^2 d x+3 b^3 c d^2 x^2+b^3 d^3 x^3\right) \text{Sec}[e+f x]^2}{2 f}-\frac{3 b^3 c d^2 \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f^3 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}+\frac{9 a b^2 c^2 d \text{Sec}[e] (\text{Cos}[e] \text{Log}[\text{Cos}[e] \text{Cos}[f x]-\text{Sin}[e] \text{Sin}[f x]]+f x \text{Sin}[e])}{f^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}-$$

$$\frac{3\,a^2\,b\,c^3\,\mathrm{Sec}[e]\,\left(\mathrm{Cos}[e]\,\mathrm{Log}[\mathrm{Cos}[e]\,\mathrm{Cos}[f\,x]-\mathrm{Sin}[e]\,\mathrm{Sin}[f\,x]]+f\,x\,\mathrm{Sin}[e]\right)}{f\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}+$$

$$\frac{b^3\,c^3\,\mathrm{Sec}[e]\,\left(\mathrm{Cos}[e]\,\mathrm{Log}[\mathrm{Cos}[e]\,\mathrm{Cos}[f\,x]-\mathrm{Sin}[e]\,\mathrm{Sin}[f\,x]]+f\,x\,\mathrm{Sin}[e]\right)}{f\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}-$$

$$\Bigg(3\,b^3\,d^3\,\mathrm{Csc}[e]\,\Bigg(e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[e]]}\,f^2\,x^2-$$

$$1\Big/\left(\sqrt{1+\mathrm{Cot}[e]^2}\right)\mathrm{Cot}[e]\,\left(i\,f\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,f\,x}\right]-2\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])\,\mathrm{Log}\left[1-e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]+\right.$$

$$\left.\pi\,\mathrm{Log}[\mathrm{Cos}[f\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]]\,\mathrm{Log}[\mathrm{Sin}[f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]\right)\Bigg)\,\mathrm{Sec}[e]\Bigg)\Big/$$

$$\left(2\,f^4\,\sqrt{\mathrm{Csc}[e]^2\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}\right)+\Bigg(9\,a\,b^2\,c\,d^2\,\mathrm{Csc}[e]\,\Bigg(e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[e]]}\,f^2\,x^2-1\Big/\left(\sqrt{1+\mathrm{Cot}[e]^2}\right)\mathrm{Cot}[e]$$

$$\left(i\,f\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,f\,x}\right]-2\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])\,\mathrm{Log}\left[1-e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]+\right.$$

$$\left.\pi\,\mathrm{Log}[\mathrm{Cos}[f\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]]\,\mathrm{Log}[\mathrm{Sin}[f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]\right)\Bigg)\,\mathrm{Sec}[e]\Bigg)\Big/$$

$$\left(f^3\,\sqrt{\mathrm{Csc}[e]^2\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}\right)-\Bigg(9\,a^2\,b\,c^2\,d\,\mathrm{Csc}[e]\,\Bigg(e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[e]]}\,f^2\,x^2-1\Big/\left(\sqrt{1+\mathrm{Cot}[e]^2}\right)\mathrm{Cot}[e]$$

$$\left(i\,f\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,f\,x}\right]-2\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])\,\mathrm{Log}\left[1-e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]+\right.$$

$$\left.\pi\,\mathrm{Log}[\mathrm{Cos}[f\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]]\,\mathrm{Log}[\mathrm{Sin}[f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]\right)\Bigg)\,\mathrm{Sec}[e]\Bigg)\Big/$$

$$\left(2\,f^2\,\sqrt{\mathrm{Csc}[e]^2\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}\right)+\Bigg(3\,b^3\,c^2\,d\,\mathrm{Csc}[e]\,\Bigg(e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[e]]}\,f^2\,x^2-1\Big/\left(\sqrt{1+\mathrm{Cot}[e]^2}\right)\mathrm{Cot}[e]$$

$$\left(i\,f\,x\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,f\,x}\right]-2\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])\,\mathrm{Log}\left[1-e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]+\right.$$

$$\left.\pi\,\mathrm{Log}[\mathrm{Cos}[f\,x]]-2\,\mathrm{ArcTan}[\mathrm{Cot}[e]]\,\mathrm{Log}[\mathrm{Sin}[f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]]]]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\,(f\,x-\mathrm{ArcTan}[\mathrm{Cot}[e]])}\right]\right)\Bigg)\,\mathrm{Sec}[e]\Bigg)\Big/$$

$$\left(2\,f^2\,\sqrt{\mathrm{Csc}[e]^2\,\left(\mathrm{Cos}[e]^2+\mathrm{Sin}[e]^2\right)}\right)+\left(3\,x^2\,\left(a^3\,c^2\,d+3\,i\,a^2\,b\,c^2\,d-3\,a\,b^2\,c^2\,d-i\,b^3\,c^2\,d+a^3\,c^2\,d\,\mathrm{Cos}[2\,e]-3\,i\,a^2\,b\,c^2\,d\,\mathrm{Cos}[2\,e]-\right.\right.$$

$$\left.\left.3\,a\,b^2\,c^2\,d\,\mathrm{Cos}[2\,e]+i\,b^3\,c^2\,d\,\mathrm{Cos}[2\,e]+i\,a^3\,c^2\,d\,\mathrm{Sin}[2\,e]+3\,a^2\,b\,c^2\,d\,\mathrm{Sin}[2\,e]-3\,i\,a\,b^2\,c^2\,d\,\mathrm{Sin}[2\,e]-b^3\,c^2\,d\,\mathrm{Sin}[2\,e]\right)\right)\Big/$$

$$(2\,(1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]))+\frac{1}{1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]}x^3\,\left(a^3\,c\,d^2+3\,i\,a^2\,b\,c\,d^2-3\,a\,b^2\,c\,d^2-i\,b^3\,c\,d^2+a^3\,c\,d^2\,\mathrm{Cos}[2\,e]-\right.$$

$$\left.3\,i\,a^2\,b\,c\,d^2\,\mathrm{Cos}[2\,e]-3\,a\,b^2\,c\,d^2\,\mathrm{Cos}[2\,e]+i\,b^3\,c\,d^2\,\mathrm{Cos}[2\,e]+i\,a^3\,c\,d^2\,\mathrm{Sin}[2\,e]+3\,a^2\,b\,c\,d^2\,\mathrm{Sin}[2\,e]-3\,i\,a\,b^2\,c\,d^2\,\mathrm{Sin}[2\,e]-b^3\,c\,d^2\,\mathrm{Sin}[2\,e]\right)+$$

$$\left(x^4\,\left(a^3\,d^3+3\,i\,a^2\,b\,d^3-3\,a\,b^2\,d^3-i\,b^3\,d^3+a^3\,d^3\,\mathrm{Cos}[2\,e]-3\,i\,a^2\,b\,d^3\,\mathrm{Cos}[2\,e]-3\,a\,b^2\,d^3\,\mathrm{Cos}[2\,e]+i\,b^3\,d^3\,\mathrm{Cos}[2\,e]+\right.\right.$$

$$\left.\left.i\,a^3\,d^3\,\mathrm{Sin}[2\,e]+3\,a^2\,b\,d^3\,\mathrm{Sin}[2\,e]-3\,i\,a\,b^2\,d^3\,\mathrm{Sin}[2\,e]-b^3\,d^3\,\mathrm{Sin}[2\,e]\right)\right)\Big/(4\,(1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]))+$$

$$x\,\left(a^3\,c^3-3\,a\,b^2\,c^3+\frac{3\,i\,a^2\,b\,c^3}{1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]}+\frac{-3\,i\,a^2\,b\,c^3\,\mathrm{Cos}[2\,e]+3\,a^2\,b\,c^3\,\mathrm{Sin}[2\,e]}{1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]}+\right.$$

$$\frac{2\,i\,b^3\,c^3\,\mathrm{Cos}[2\,e]-2\,b^3\,c^3\,\mathrm{Sin}[2\,e]}{(1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e])\,(1-\mathrm{Cos}[2\,e]+\mathrm{Cos}[4\,e]-i\,\mathrm{Sin}[2\,e]+i\,\mathrm{Sin}[4\,e])}+$$

$$\left.\frac{-2\,i\,b^3\,c^3\,\mathrm{Cos}[4\,e]+2\,b^3\,c^3\,\mathrm{Sin}[4\,e]}{(1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e])\,(1-\mathrm{Cos}[2\,e]+\mathrm{Cos}[4\,e]-i\,\mathrm{Sin}[2\,e]+i\,\mathrm{Sin}[4\,e])}-\frac{i\,b^3\,c^3}{1+\mathrm{Cos}[6\,e]+i\,\mathrm{Sin}[6\,e]}+\frac{i\,b^3\,c^3\,\mathrm{Cos}[6\,e]-b^3\,c^3\,\mathrm{Sin}[6\,e]}{1+\mathrm{Cos}[6\,e]+i\,\mathrm{Sin}[6\,e]}\right)+$$

$$\frac{1}{2 f^2} 3 \operatorname{Sec}[e] \operatorname{Sec}[e+f x] \left(-b^3 c^2 d \operatorname{Sin}[f x]+2 a b^2 c^3 f \operatorname{Sin}[f x]-2 b^3 c d^2 x \operatorname{Sin}[f x]+6 a b^2 c^2 d f x \operatorname{Sin}[f x]-b^3 d^3 x^2 \operatorname{Sin}[f x]+6 a b^2 c d^2 f x^2 \operatorname{Sin}[f x]+2 a b^2 d^3 f x^3 \operatorname{Sin}[f x]\right)$$

- **Problem 50: Result more than twice size of optimal antiderivative.**

$$\int (c+d x)^2 (a+b \operatorname{Tan}[e+f x])^3 \, dx$$

Optimal (type 4, 436 leaves, 22 steps):

$$\frac{b^3 c d x}{f}+\frac{b^3 d^2 x^2}{2 f}-\frac{3 i a b^2 (c+d x)^2}{f}+\frac{a^3 (c+d x)^3}{3 d}+\frac{i a^2 b (c+d x)^3}{d}-\frac{a b^2 (c+d x)^3}{d}-\frac{i b^3 (c+d x)^3}{3 d}+\frac{6 a b^2 d (c+d x) \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f^2}-\frac{3 a^2 b (c+d x)^2 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f}+\frac{b^3 (c+d x)^2 \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]}{f}-\frac{b^3 d^2 \operatorname{Log}[\operatorname{Cos}[e+f x]]}{f^3}-\frac{3 i a b^2 d^2 \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^3}+\frac{3 i a^2 b d (c+d x) \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^2}-\frac{i b^3 d (c+d x) \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]}{f^2}-\frac{3 a^2 b d^2 \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}+\frac{b^3 d^2 \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]}{2 f^3}-\frac{b^3 d (c+d x) \operatorname{Tan}[e+f x]}{f^2}+\frac{3 a b^2 (c+d x)^2 \operatorname{Tan}[e+f x]}{f}+\frac{b^3 (c+d x)^2 \operatorname{Tan}[e+f x]^2}{2 f}$$

Result (type 4, 1860 leaves):

$$\frac{1}{4 f^3} a^2 b d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \operatorname{Sec}[e]-\frac{1}{12 f^3} b^3 d^2 e^{-i e} \left(2 i f^2 x^2 \left(2 e^{2 i e} f x+3 i \left(1+e^{2 i e}\right) \operatorname{Log}\left[1+e^{2 i (e+f x)}\right]\right)+6 i \left(1+e^{2 i e}\right) f x \operatorname{PolyLog}\left[2,-e^{2 i (e+f x)}\right]-3 \left(1+e^{2 i e}\right) \operatorname{PolyLog}\left[3,-e^{2 i (e+f x)}\right]\right) \operatorname{Sec}[e]-\frac{b^3 d^2 \operatorname{Sec}[e] (\operatorname{Cos}[e] \operatorname{Log}[\operatorname{Cos}[e] \operatorname{Cos}[f x]-\operatorname{Sin}[e] \operatorname{Sin}[f x]]+f x \operatorname{Sin}[e])}{f^3 \left(\operatorname{Cos}[e]^2+\operatorname{Sin}[e]^2\right)}+\frac{6 a b^2 c d \operatorname{Sec}[e] (\operatorname{Cos}[e] \operatorname{Log}[\operatorname{Cos}[e] \operatorname{Cos}[f x]-\operatorname{Sin}[e] \operatorname{Sin}[f x]]+f x \operatorname{Sin}[e])}{f^2 \left(\operatorname{Cos}[e]^2+\operatorname{Sin}[e]^2\right)}-\frac{3 a^2 b c^2 \operatorname{Sec}[e] (\operatorname{Cos}[e] \operatorname{Log}[\operatorname{Cos}[e] \operatorname{Cos}[f x]-\operatorname{Sin}[e] \operatorname{Sin}[f x]]+f x \operatorname{Sin}[e])}{f \left(\operatorname{Cos}[e]^2+\operatorname{Sin}[e]^2\right)}+\frac{b^3 c^2 \operatorname{Sec}[e] (\operatorname{Cos}[e] \operatorname{Log}[\operatorname{Cos}[e] \operatorname{Cos}[f x]-\operatorname{Sin}[e] \operatorname{Sin}[f x]]+f x \operatorname{Sin}[e])}{f \left(\operatorname{Cos}[e]^2+\operatorname{Sin}[e]^2\right)}+\left(3 a b^2 d^2 \operatorname{Csc}[e] \left(e^{-i \operatorname{ArcTan}[\operatorname{Cot}[e]]} f^2 x^2-1 \Big/ \left(\sqrt{1+\operatorname{Cot}[e]^2}\right) \operatorname{Cot}[e] \left(i f x (-\pi-2 \operatorname{ArcTan}[\operatorname{Cot}[e]])-\pi \operatorname{Log}\left[1+e^{-2 i f x}\right]-2 (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]]) \operatorname{Log}\left[1-e^{2 i (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]])}\right]+\pi \operatorname{Log}[\operatorname{Cos}[f x]]-2 \operatorname{ArcTan}[\operatorname{Cot}[e]] \operatorname{Log}[\operatorname{Sin}[f x-\operatorname{ArcTan}[\operatorname{Cot}[e]]]]+i \operatorname{PolyLog}\left[2, e^{2 i (f x-\operatorname{ArcTan}[\operatorname{Cot}[e]])}\right]\right)\right) \operatorname{Sec}[e]\right) \Big/$$

$$\left(f^3 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right) - \Big(3 a^2 b c d \,\text{Csc}[e] \,\Big(e^{-i \,\text{ArcTan}[\text{Cot}[e]]} f^2 x^2 - 1 \Big/ \left(\sqrt{1+\text{Cot}[e]^2}\right) \text{Cot}[e]$$

$$\Big(i f x (-\pi - 2 \,\text{ArcTan}[\text{Cot}[e]]) - \pi \,\text{Log}\left[1+e^{-2 i f x}\right] - 2 (f x - \text{ArcTan}[\text{Cot}[e]]) \,\text{Log}\left[1-e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right] +$$

$$\pi \,\text{Log}[\text{Cos}[f x]] - 2 \,\text{ArcTan}[\text{Cot}[e]] \,\text{Log}[\text{Sin}[f x - \text{ArcTan}[\text{Cot}[e]]]] + i \,\text{PolyLog}\left[2, e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right]\Big)\Big) \,\text{Sec}[e]\Big) \Big/$$

$$\left(f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right) + \Big(b^3 c d \,\text{Csc}[e] \,\Big(e^{-i \,\text{ArcTan}[\text{Cot}[e]]} f^2 x^2 - 1 \Big/ \left(\sqrt{1+\text{Cot}[e]^2}\right) \text{Cot}[e]$$

$$\Big(i f x (-\pi - 2 \,\text{ArcTan}[\text{Cot}[e]]) - \pi \,\text{Log}\left[1+e^{-2 i f x}\right] - 2 (f x - \text{ArcTan}[\text{Cot}[e]]) \,\text{Log}\left[1-e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right] +$$

$$\pi \,\text{Log}[\text{Cos}[f x]] - 2 \,\text{ArcTan}[\text{Cot}[e]] \,\text{Log}[\text{Sin}[f x - \text{ArcTan}[\text{Cot}[e]]]] + i \,\text{PolyLog}\left[2, e^{2 i (f x - \text{ArcTan}[\text{Cot}[e]])}\right]\Big)\Big) \,\text{Sec}[e]\Big) \Big/$$

$$\left(f^2 \sqrt{\text{Csc}[e]^2 \left(\text{Cos}[e]^2+\text{Sin}[e]^2\right)}\right) + \frac{1}{12 f^2} \text{Sec}[e] \,\text{Sec}[e+f x]^2 \,\Big(6 b^3 c^2 f \,\text{Cos}[e] + 12 b^3 c d f x \,\text{Cos}[e] + 6 a^3 c^2 f^2 x \,\text{Cos}[e] -$$

$$18 a b^2 c^2 f^2 x \,\text{Cos}[e] + 6 b^3 d^2 f x^2 \,\text{Cos}[e] + 6 a^3 c d f^2 x^2 \,\text{Cos}[e] - 18 a b^2 c d f^2 x^2 \,\text{Cos}[e] + 2 a^3 d^2 f^2 x^3 \,\text{Cos}[e] - 6 a b^2 d^2 f^2 x^3 \,\text{Cos}[e] +$$

$$3 a^3 c^2 f^2 x \,\text{Cos}[e+2 f x] - 9 a b^2 c^2 f^2 x \,\text{Cos}[e+2 f x] + 3 a^3 c d f^2 x^2 \,\text{Cos}[e+2 f x] - 9 a b^2 c d f^2 x^2 \,\text{Cos}[e+2 f x] +$$

$$a^3 d^2 f^2 x^3 \,\text{Cos}[e+2 f x] - 3 a b^2 d^2 f^2 x^3 \,\text{Cos}[e+2 f x] + 3 a^3 c^2 f^2 x \,\text{Cos}[3 e+2 f x] - 9 a b^2 c^2 f^2 x \,\text{Cos}[3 e+2 f x] +$$

$$3 a^3 c d f^2 x^2 \,\text{Cos}[3 e+2 f x] - 9 a b^2 c d f^2 x^2 \,\text{Cos}[3 e+2 f x] + a^3 d^2 f^2 x^3 \,\text{Cos}[3 e+2 f x] - 3 a b^2 d^2 f^2 x^3 \,\text{Cos}[3 e+2 f x] +$$

$$6 b^3 c d \,\text{Sin}[e] - 18 a b^2 c^2 f \,\text{Sin}[e] + 6 b^3 d^2 x \,\text{Sin}[e] - 36 a b^2 c d f x \,\text{Sin}[e] + 18 a^2 b c^2 f^2 x \,\text{Sin}[e] - 6 b^3 c^2 f^2 x \,\text{Sin}[e] -$$

$$18 a b^2 d^2 f x^2 \,\text{Sin}[e] + 18 a^2 b c d f^2 x^2 \,\text{Sin}[e] - 6 b^3 c d f^2 x^2 \,\text{Sin}[e] + 6 a^2 b d^2 f^2 x^3 \,\text{Sin}[e] - 2 b^3 d^2 f^2 x^3 \,\text{Sin}[e] -$$

$$6 b^3 c d \,\text{Sin}[e+2 f x] + 18 a b^2 c^2 f \,\text{Sin}[e+2 f x] - 6 b^3 d^2 x \,\text{Sin}[e+2 f x] + 36 a b^2 c d f x \,\text{Sin}[e+2 f x] - 9 a^2 b c^2 f^2 x \,\text{Sin}[e+2 f x] +$$

$$3 b^3 c^2 f^2 x \,\text{Sin}[e+2 f x] + 18 a b^2 d^2 f x^2 \,\text{Sin}[e+2 f x] - 9 a^2 b c d f^2 x^2 \,\text{Sin}[e+2 f x] + 3 b^3 c d f^2 x^2 \,\text{Sin}[e+2 f x] -$$

$$3 a^2 b d^2 f^2 x^3 \,\text{Sin}[e+2 f x] + b^3 d^2 f^2 x^3 \,\text{Sin}[e+2 f x] + 9 a^2 b c^2 f^2 x \,\text{Sin}[3 e+2 f x] - 3 b^3 c^2 f^2 x \,\text{Sin}[3 e+2 f x] +$$

$$9 a^2 b c d f^2 x^2 \,\text{Sin}[3 e+2 f x] - 3 b^3 c d f^2 x^2 \,\text{Sin}[3 e+2 f x] + 3 a^2 b d^2 f^2 x^3 \,\text{Sin}[3 e+2 f x] - b^3 d^2 f^2 x^3 \,\text{Sin}[3 e+2 f x]\Big)$$

- **Problem 59: Result more than twice size of optimal antiderivative.**

$$\int \frac{(c+d x)^3}{(a+b \,\text{Tan}[e+f x])^2} \, dx$$

Optimal (type 4, 848 leaves, 21 steps) :

$$-\frac{2 i b^2 (c+d x)^3}{\left(a^2+b^2\right)^2 f}+\frac{2 b^2 (c+d x)^3}{(a+i b) (i a+b)^2 \left(i a-b+(i a+b) e^{2 i e+2 i f x}\right) f}+\frac{(c+d x)^4}{4 (a-i b)^2 d}+$$

$$\frac{b (c+d x)^4}{(i a-b) (a-i b)^2 d}-\frac{b^2 (c+d x)^4}{\left(a^2+b^2\right)^2 d}+\frac{3 b^2 d (c+d x)^2 \text{Log}\left[1+\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{\left(a^2+b^2\right)^2 f^2}+\frac{2 b (c+d x)^3 \text{Log}\left[1+\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{(a-i b)^2 (a+i b) f}-$$

$$\frac{2 i b^2 (c+d x)^3 \text{Log}\left[1+\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{\left(a^2+b^2\right)^2 f}-\frac{3 i b^2 d^2 (c+d x) \text{PolyLog}\left[2,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{\left(a^2+b^2\right)^2 f^3}+\frac{3 b d (c+d x)^2 \text{PolyLog}\left[2,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{(i a-b) (a-i b)^2 f^2}-$$

$$\frac{3 b^2 d (c+d x)^2 \text{PolyLog}\left[2,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{\left(a^2+b^2\right)^2 f^2}+\frac{3 b^2 d^3 \text{PolyLog}\left[3,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{2 \left(a^2+b^2\right)^2 f^4}+\frac{3 b d^2 (c+d x) \text{PolyLog}\left[3,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{(a-i b)^2 (a+i b) f^3}-$$

$$\frac{3 i b^2 d^2 (c+d x) \text{PolyLog}\left[3,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{\left(a^2+b^2\right)^2 f^3}-\frac{3 b d^3 \text{PolyLog}\left[4,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{2 (i a-b) (a-i b)^2 f^4}+\frac{3 b^2 d^3 \text{PolyLog}\left[4,-\frac{(a-i b) e^{2 i e+2 i f x}}{a+i b}\right]}{2 \left(a^2+b^2\right)^2 f^4}$$

Result (type 4, 2713 leaves):

$$\frac{1}{2 (a-i b)^2 (a+i b)^3 \left(-i b \left(-1+e^{2 i e}\right)+a \left(1+e^{2 i e}\right)\right) f^4}$$

$$b e^{2 i e} \Big(4 (a-i b) (-i a+b) c^2 f^3 (3 b d+2 a c f) x+4 (a+i b) c^2 e^{-2 i e} \left(b \left(-1+e^{2 i e}\right)+i a \left(1+e^{2 i e}\right)\right) f^3 (3 b d+2 a c f) x+$$

$$12 i a (a+i b) b c d^2 f^3 x^2+12 (a+i b) b^2 c d^2 f^3 x^2+12 i a (a+i b) b c d^2 e^{-2 i e} f^3 x^2-12 i b^2 (-i a+b) c d^2 e^{-2 i e} f^3 x^2+$$
$$12 i a^2 (a+i b) c^2 d f^4 x^2+12 a (a+i b) b c^2 d f^4 x^2+12 i a^2 (a+i b) c^2 d e^{-2 i e} f^4 x^2-12 a (a+i b) b c^2 d e^{-2 i e} f^4 x^2+$$
$$12 (a-i b) (-i a+b) c d f^3 (b d+a c f) x^2+4 i a (a+i b) b d^3 f^3 x^3+4 (a+i b) b^2 d^3 f^3 x^3+4 i a (a+i b) b d^3 e^{-2 i e} f^3 x^3-$$
$$4 i b^2 (-i a+b) d^3 e^{-2 i e} f^3 x^3+8 i a^2 (a+i b) c d^2 f^4 x^3+8 a (a+i b) b c d^2 f^4 x^3+8 i a^2 (a+i b) c d^2 e^{-2 i e} f^4 x^3-$$
$$8 a (a+i b) b c d^2 e^{-2 i e} f^4 x^3+4 (a-i b) (-i a+b) d^2 f^3 (b d+2 a c f) x^3+2 i a^2 (a+i b) d^3 f^4 x^4+$$
$$2 a (a+i b) b d^3 f^4 x^4+2 a (a-i b) (-i a+b) d^3 f^4 x^4+2 i a^2 (a+i b) d^3 e^{-2 i e} f^4 x^4-2 a (a+i b) b d^3 e^{-2 i e} f^4 x^4+$$

$$3 b (-i a+b) c^2 d e^{-2 i e} \left(b \left(-1+e^{2 i e}\right)+i a \left(1+e^{2 i e}\right)\right) f^2 \Big(-4 i f x-2 i \text{ArcTan}\left[\frac{2 a b e^{2 i (e+f x)}}{-b^2 \left(-1+e^{2 i (e+f x)}\right)+a^2 \left(1+e^{2 i (e+f x)}\right)}\right]+$$

$$\text{Log}\left[b^2 \left(-1+e^{2 i (e+f x)}\right)^2+a^2 \left(1+e^{2 i (e+f x)}\right)^2\right]\Big)+2 a (a+i b) c^3 e^{-2 i e} \left(-i b \left(-1+e^{2 i e}\right)+a \left(1+e^{2 i e}\right)\right) f^3$$

$$\Big(-4 i f x-2 i \text{ArcTan}\left[\frac{2 a b e^{2 i (e+f x)}}{-b^2 \left(-1+e^{2 i (e+f x)}\right)+a^2 \left(1+e^{2 i (e+f x)}\right)}\right]+\text{Log}\left[b^2 \left(-1+e^{2 i (e+f x)}\right)^2+a^2 \left(1+e^{2 i (e+f x)}\right)^2\right]\Big)-$$

$$6 i b (-i a+b) c d^2 e^{-2 i e} \left(b \left(-1+e^{2 i e}\right)+i a \left(1+e^{2 i e}\right)\right) f \left(2 f x \left(f x+i \text{Log}\left[1+\frac{(a-i b) e^{2 i (e+f x)}}{a+i b}\right]\right)+\text{PolyLog}\left[2,-\frac{(a-i b) e^{2 i (e+f x)}}{a+i b}\right]\right)-$$

$$6 i a (a+i b) c^2 d e^{-2 i e} \left(-i b \left(-1+e^{2 i e}\right)+a \left(1+e^{2 i e}\right)\right) f^2 \left(2 f x \left(f x+i \text{Log}\left[1+\frac{(a-i b) e^{2 i (e+f x)}}{a+i b}\right]\right)+\text{PolyLog}\left[2,-\frac{(a-i b) e^{2 i (e+f x)}}{a+i b}\right]\right)+$$

$$b\,(-i\,a+b)\,d^3\,e^{-2\,i\,e}\left(b\left(-1+e^{2\,i\,e}\right)+i\,a\left(1+e^{2\,i\,e}\right)\right)\left(2\,f^2\,x^2\left(-2\,i\,f\,x+3\,\text{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)-6\,i\,f\,x\,\text{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+3\,\text{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)+2\,a\,(a+i\,b)\,c\,d^2\,e^{-2\,i\,e}\left(-i\,b\left(-1+e^{2\,i\,e}\right)+a\left(1+e^{2\,i\,e}\right)\right)f\left(2\,f^2\,x^2\left(-2\,i\,f\,x+3\,\text{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)-6\,i\,f\,x\,\text{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+3\,\text{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)+a\,(a+i\,b)\,d^3\,e^{-2\,i\,e}\left(-i\,b\left(-1+e^{2\,i\,e}\right)+a\left(1+e^{2\,i\,e}\right)\right)\left(-2\,i\,f^4\,x^4+4\,f^3\,x^3\,\text{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]-6\,i\,f^2\,x^2\,\text{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+6\,f\,x\,\text{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+3\,i\,\text{PolyLog}\left[4,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)\Bigg)+$$

$$\frac{3\,x^2\left(a\,c^2\,d-i\,b\,c^2\,d+a\,c^2\,d\,\text{Cos}[2\,e]+i\,b\,c^2\,d\,\text{Cos}[2\,e]+i\,a\,c^2\,d\,\text{Sin}[2\,e]-b\,c^2\,d\,\text{Sin}[2\,e]\right)}{2\,(a-i\,b)\,(a+i\,b)\,(a+i\,b+a\,\text{Cos}[2\,e]-i\,b\,\text{Cos}[2\,e]+i\,a\,\text{Sin}[2\,e]+b\,\text{Sin}[2\,e])}+$$

$$\frac{x^3\left(a\,c\,d^2-i\,b\,c\,d^2+a\,c\,d^2\,\text{Cos}[2\,e]+i\,b\,c\,d^2\,\text{Cos}[2\,e]+i\,a\,c\,d^2\,\text{Sin}[2\,e]-b\,c\,d^2\,\text{Sin}[2\,e]\right)}{(a-i\,b)\,(a+i\,b)\,(a+i\,b+a\,\text{Cos}[2\,e]-i\,b\,\text{Cos}[2\,e]+i\,a\,\text{Sin}[2\,e]+b\,\text{Sin}[2\,e])}+$$

$$\frac{x^4\left(a\,d^3-i\,b\,d^3+a\,d^3\,\text{Cos}[2\,e]+i\,b\,d^3\,\text{Cos}[2\,e]+i\,a\,d^3\,\text{Sin}[2\,e]-b\,d^3\,\text{Sin}[2\,e]\right)}{4\,(a-i\,b)\,(a+i\,b)\,(a+i\,b+a\,\text{Cos}[2\,e]-i\,b\,\text{Cos}[2\,e]+i\,a\,\text{Sin}[2\,e]+b\,\text{Sin}[2\,e])}+$$

$$x\Big(c^3\Big/\left(a^2+2\,i\,a\,b-b^2+a^2\,\text{Cos}[4\,e]-2\,i\,a\,b\,\text{Cos}[4\,e]-b^2\,\text{Cos}[4\,e]+i\,a^2\,\text{Sin}[4\,e]+2\,a\,b\,\text{Sin}[4\,e]-i\,b^2\,\text{Sin}[4\,e]\right)+\Big(\left(-a-i\,b+a\,\text{Cos}[2\,e]-i\,b\,\text{Cos}[2\,e]+i\,a\,\text{Sin}[2\,e]+b\,\text{Sin}[2\,e]\right)\left(-4\,i\,a\,b\,c^3\,\text{Cos}[2\,e]+4\,a\,b\,c^3\,\text{Sin}[2\,e]\right)\Big)\Big/\Big((a-i\,b)\,(a+i\,b)\,(a+i\,b+a\,\text{Cos}[2\,e]-i\,b\,\text{Cos}[2\,e]+i\,a\,\text{Sin}[2\,e]+b\,\text{Sin}[2\,e])\left(a^2+2\,i\,a\,b-b^2+a^2\,\text{Cos}[4\,e]-2\,i\,a\,b\,\text{Cos}[4\,e]-b^2\,\text{Cos}[4\,e]+i\,a^2\,\text{Sin}[4\,e]+2\,a\,b\,\text{Sin}[4\,e]-i\,b^2\,\text{Sin}[4\,e]\right)\Big)+\left(c^3\,\text{Cos}[4\,e]+i\,c^3\,\text{Sin}[4\,e]\right)\Big/\left(a^2+2\,i\,a\,b-b^2+a^2\,\text{Cos}[4\,e]-2\,i\,a\,b\,\text{Cos}[4\,e]-b^2\,\text{Cos}[4\,e]+i\,a^2\,\text{Sin}[4\,e]+2\,a\,b\,\text{Sin}[4\,e]-i\,b^2\,\text{Sin}[4\,e]\right)\Big)+$$

$$\frac{b^2\,c^3\,\text{Sin}[f\,x]+3\,b^2\,c^2\,d\,x\,\text{Sin}[f\,x]+3\,b^2\,c\,d^2\,x^2\,\text{Sin}[f\,x]+b^2\,d^3\,x^3\,\text{Sin}[f\,x]}{(a-i\,b)\,(a+i\,b)\,f\,(a\,\text{Cos}[e]+b\,\text{Sin}[e])\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}$$

- **Problem 60: Result more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,x)^2}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 654 leaves, 18 steps):

$$-\frac{2\,i\,b^2\,(c+d\,x)^2}{\left(a^2+b^2\right)^2 f}+\frac{2\,b^2\,(c+d\,x)^2}{(a+i\,b)\,(i\,a+b)^2\left(i\,a-b+(i\,a+b)\,e^{2\,i\,e+2\,i\,f\,x}\right)f}+\frac{(c+d\,x)^3}{3\,(a-i\,b)^2\,d}+$$

$$\frac{4\,b\,(c+d\,x)^3}{3\,(i\,a-b)\,(a-i\,b)^2\,d}-\frac{4\,b^2\,(c+d\,x)^3}{3\left(a^2+b^2\right)^2 d}+\frac{2\,b^2\,d\,(c+d\,x)\,\mathrm{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{\left(a^2+b^2\right)^2 f^2}+\frac{2\,b\,(c+d\,x)^2\,\mathrm{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{(a-i\,b)^2\,(a+i\,b)\,f}-$$

$$\frac{2\,i\,b^2\,(c+d\,x)^2\,\mathrm{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{\left(a^2+b^2\right)^2 f}-\frac{i\,b^2\,d^2\,\mathrm{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{\left(a^2+b^2\right)^2 f^3}+\frac{2\,b\,d\,(c+d\,x)\,\mathrm{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{(i\,a-b)\,(a-i\,b)^2\,f^2}-$$

$$\frac{2\,b^2\,d\,(c+d\,x)\,\mathrm{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{\left(a^2+b^2\right)^2 f^2}+\frac{b\,d^2\,\mathrm{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{(a-i\,b)^2\,(a+i\,b)\,f^3}-\frac{i\,b^2\,d^2\,\mathrm{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,e+2\,i\,f\,x}}{a+i\,b}\right]}{\left(a^2+b^2\right)^2 f^3}$$

Result (type 4, 1320 leaves) :

$$\frac{1}{3\,(a-i\,b)\,(a+i\,b)\,\left(a^2+b^2\right)\left(b-b\,e^{2\,i\,e}-i\,a\left(1+e^{2\,i\,e}\right)\right)f^3}$$

$$b\left(-f\left(12\,a\,b\,c\,d\,e^{2\,i\,e}\,f\,x-12\,i\,b^2\,c\,d\,e^{2\,i\,e}\,f\,x+12\,a^2\,c^2\,e^{2\,i\,e}\,f^2\,x-12\,i\,a\,b\,c^2\,e^{2\,i\,e}\,f^2\,x+6\,a\,b\,d^2\,e^{2\,i\,e}\,f\,x^2-6\,i\,b^2\,d^2\,e^{2\,i\,e}\,f\,x^2+12\,a^2\,c\,d\,e^{2\,i\,e}\,f^2\,x^2-\right.\right.$$

$$12\,i\,a\,b\,c\,d\,e^{2\,i\,e}\,f^2\,x^2+4\,a^2\,d^2\,e^{2\,i\,e}\,f^2\,x^3-4\,i\,a\,b\,d^2\,e^{2\,i\,e}\,f^2\,x^3+6\,c\left(-i\,b\left(-1+e^{2\,i\,e}\right)+a\left(1+e^{2\,i\,e}\right)\right)(b\,d+a\,c\,f)\,\mathrm{ArcTan}\left[\right.$$

$$\left.\frac{2\,a\,b\,e^{2\,i\,(e+f\,x)}}{-b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)}\right]+6\,d\left(b\left(-1+e^{2\,i\,e}\right)+i\,a\left(1+e^{2\,i\,e}\right)\right)x\,(b\,d+a\,f\,(2\,c+d\,x))\,\mathrm{Log}\left[1+\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+$$

$$3\,i\,a\,b\,c\,d\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]-3\,b^2\,c\,d\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]+$$

$$3\,i\,a\,b\,c\,d\,e^{2\,i\,e}\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]+3\,b^2\,c\,d\,e^{2\,i\,e}\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]+$$

$$3\,i\,a^2\,c^2\,f\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]-3\,a\,b\,c^2\,f\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]+$$

$$\left.3\,i\,a^2\,c^2\,e^{2\,i\,e}\,f\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]+3\,a\,b\,c^2\,e^{2\,i\,e}\,f\,\mathrm{Log}\left[b^2\left(-1+e^{2\,i\,(e+f\,x)}\right)^2+a^2\left(1+e^{2\,i\,(e+f\,x)}\right)^2\right]\right)-$$

$$3\,d\left(-i\,b\left(-1+e^{2\,i\,e}\right)+a\left(1+e^{2\,i\,e}\right)\right)(b\,d+2\,a\,f\,(c+d\,x))\,\mathrm{PolyLog}\left[2,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]+$$

$$\left.3\,a\,d^2\left(b-b\,e^{2\,i\,e}-i\,a\left(1+e^{2\,i\,e}\right)\right)\mathrm{PolyLog}\left[3,-\frac{(a-i\,b)\,e^{2\,i\,(e+f\,x)}}{a+i\,b}\right]\right)+$$

$$\left(3\,a^2\,c^2\,f\,x\,\mathrm{Cos}[f\,x]-3\,b^2\,c^2\,f\,x\,\mathrm{Cos}[f\,x]+3\,a^2\,c\,d\,f\,x^2\,\mathrm{Cos}[f\,x]-3\,b^2\,c\,d\,f\,x^2\,\mathrm{Cos}[f\,x]+a^2\,d^2\,f\,x^3\,\mathrm{Cos}[f\,x]-\right.$$

$$b^2\,d^2\,f\,x^3\,\mathrm{Cos}[f\,x]+3\,a^2\,c^2\,f\,x\,\mathrm{Cos}[2\,e+f\,x]+3\,b^2\,c^2\,f\,x\,\mathrm{Cos}[2\,e+f\,x]+$$

$$3\,a^2\,c\,d\,f\,x^2\,\mathrm{Cos}[2\,e+f\,x]+3\,b^2\,c\,d\,f\,x^2\,\mathrm{Cos}[2\,e+f\,x]+a^2\,d^2\,f\,x^3\,\mathrm{Cos}[2\,e+f\,x]+$$

$$b^2\,d^2\,f\,x^3\,\mathrm{Cos}[2\,e+f\,x]+6\,b^2\,c^2\,\mathrm{Sin}[f\,x]+12\,b^2\,c\,d\,x\,\mathrm{Sin}[f\,x]+6\,a\,b\,c^2\,f\,x\,\mathrm{Sin}[f\,x]+$$

$$\left.6\,b^2\,d^2\,x^2\,\mathrm{Sin}[f\,x]+6\,a\,b\,c\,d\,f\,x^2\,\mathrm{Sin}[f\,x]+2\,a\,b\,d^2\,f\,x^3\,\mathrm{Sin}[f\,x]\right)\Big/$$

$$(6\,(a-i\,b)\,(a+i\,b)\,f\,(a\,\mathrm{Cos}[e]+b\,\mathrm{Sin}[e])\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]))$$

Problem 61: Result more than twice size of optimal antiderivative.

$$\int \frac{c+d x}{(a+b \operatorname{Tan}[e+f x])^2}\, dx$$

Optimal (type 4, 214 leaves, 5 steps):

$$-\frac{(c+d x)^2}{2\left(a^2+b^2\right) d}+\frac{(b d+2 a c f+2 a d f x)^2}{4 a (a+i b)\left(a^2+b^2\right) d f^2}+\frac{b (b d+2 a c f+2 a d f x) \operatorname{Log}\left[1+\frac{\left(a^2+b^2\right) e^{2 i (e+f x)}}{(a+i b)^2}\right]}{\left(a^2+b^2\right)^2 f^2}-\frac{i a b d \operatorname{PolyLog}\left[2,-\frac{\left(a^2+b^2\right) e^{2 i (e+f x)}}{(a+i b)^2}\right]}{\left(a^2+b^2\right)^2 f^2}-\frac{b (c+d x)}{\left(a^2+b^2\right) f (a+b \operatorname{Tan}[e+f x])}$$

Result (type 4, 745 leaves):

$$\frac{(e+f x)(-2 d e+2 c f+d (e+f x)) \operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2}{2 (a-i b)(a+i b) f^2 (a+b \operatorname{Tan}[e+f x])^2}+\frac{b^2 d(-b (e+f x)+a \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]) \operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2}{a (a-i b)(a+i b)\left(a^2+b^2\right) f^2 (a+b \operatorname{Tan}[e+f x])^2}-$$

$$\left(2 b d e(-b (e+f x)+a \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]) \operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2\right) \Big/ \left((a-i b)(a+i b)\left(a^2+b^2\right) f^2 (a+b \operatorname{Tan}[e+f x])^2\right)+$$

$$\frac{2 b c(-b (e+f x)+a \operatorname{Log}[a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x]]) \operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2}{(a-i b)(a+i b)\left(a^2+b^2\right) f (a+b \operatorname{Tan}[e+f x])^2}-$$

$$\left(d\left(e^{i \operatorname{ArcTan}\left[\frac{a}{b}\right]}(e+f x)^2+1 \Big/ \left(\sqrt{1+\frac{a^2}{b^2}}\, b\right) a\left(i (e+f x)\left(-\pi+2 \operatorname{ArcTan}\left[\frac{a}{b}\right]\right)-\pi \operatorname{Log}\left[1+e^{-2 i (e+f x)}\right]-2\left(e+f x+\operatorname{ArcTan}\left[\frac{a}{b}\right]\right)\right.\right.\right.$$

$$\left.\left.\operatorname{Log}\left[1-e^{2 i \left(e+f x+\operatorname{ArcTan}\left[\frac{a}{b}\right]\right)}\right]+\pi \operatorname{Log}[\operatorname{Cos}[e+f x]]+2 \operatorname{ArcTan}\left[\frac{a}{b}\right] \operatorname{Log}\left[\operatorname{Sin}\left[e+f x+\operatorname{ArcTan}\left[\frac{a}{b}\right]\right]\right]+i \operatorname{PolyLog}\left[2, e^{2 i \left(e+f x+\operatorname{ArcTan}\left[\frac{a}{b}\right]\right)}\right]\right)\right)$$

$$\left.\operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2\right) \Big/ \left((a-i b)(a+i b) \sqrt{\frac{a^2+b^2}{b^2}}\, f^2 (a+b \operatorname{Tan}[e+f x])^2\right)+$$

$$\left(\operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\left(-b^2 d e \operatorname{Sin}[e+f x]+b^2 c f \operatorname{Sin}[e+f x]+b^2 d (e+f x) \operatorname{Sin}[e+f x]\right)\right) \Big/ \left(a (a-i b)(a+i b) f^2 (a+b \operatorname{Tan}[e+f x])^2\right)$$

Test results for the 66 problems in "4.3.11 (e x)^m (a+b tan(c+d x^n))^p.m"

Problem 1: Result more than twice size of optimal antiderivative.

$$\int x^3 \left(a+b \operatorname{Tan}\left[c+d x^2\right]\right) \, dx$$

Optimal (type 4, 73 leaves, 7 steps):

$$\frac{a x^4}{4}+\frac{1}{4} i b x^4-\frac{b x^2 \operatorname{Log}\left[1+e^{2 i \left(c+d x^2\right)}\right]}{2 d}+\frac{i b \operatorname{PolyLog}\left[2,-e^{2 i \left(c+d x^2\right)}\right]}{4 d^2}$$

Result (type 4, 199 leaves):

$$\frac{a x^4}{4}-\left(b \operatorname{Csc}[c] \left(d^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[c]]} x^4-1\Big/\left(\sqrt{1+\operatorname{Cot}[c]^2}\right) \operatorname{Cot}[c] \left(i d x^2 \left(-\pi-2 \operatorname{ArcTan}[\operatorname{Cot}[c]]\right)-\pi \operatorname{Log}\left[1+e^{-2 i d x^2}\right]-2 \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right) \operatorname{Log}\left[1-e^{2 i \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right]+\pi \operatorname{Log}\left[\operatorname{Cos}\left[d x^2\right]\right]-2 \operatorname{ArcTan}[\operatorname{Cot}[c]] \operatorname{Log}\left[\operatorname{Sin}\left[d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right]\right]+i \operatorname{PolyLog}\left[2, e^{2 i \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right]\right)\right) \operatorname{Sec}[c]\right)\Big/\left(4 d^2 \sqrt{\operatorname{Csc}[c]^2 \left(\operatorname{Cos}[c]^2+\operatorname{Sin}[c]^2\right)}\right)+\frac{1}{4} b x^4 \operatorname{Tan}[c]$$

Problem 7: Result more than twice size of optimal antiderivative.

$$\int x^3 \left(a+b \operatorname{Tan}\left[c+d x^2\right]\right)^2 \, dx$$

Optimal (type 4, 126 leaves, 10 steps):

$$\frac{a^2 x^4}{4}+\frac{1}{2} i a b x^4-\frac{b^2 x^4}{4}-\frac{a b x^2 \operatorname{Log}\left[1+e^{2 i \left(c+d x^2\right)}\right]}{d}+\frac{b^2 \operatorname{Log}\left[\operatorname{Cos}\left[c+d x^2\right]\right]}{2 d^2}+\frac{i a b \operatorname{PolyLog}\left[2,-e^{2 i \left(c+d x^2\right)}\right]}{2 d^2}+\frac{b^2 x^2 \operatorname{Tan}\left[c+d x^2\right]}{2 d}$$

Result (type 4, 295 leaves):

$$\frac{1}{4} x^4 \operatorname{Sec}[c] \left(a^2 \operatorname{Cos}[c]-b^2 \operatorname{Cos}[c]+2 a b \operatorname{Sin}[c]\right)+\frac{b^2 \operatorname{Sec}[c] \left(\operatorname{Cos}[c] \operatorname{Log}\left[\operatorname{Cos}[c] \operatorname{Cos}\left[d x^2\right]-\operatorname{Sin}[c] \operatorname{Sin}\left[d x^2\right]\right]+d x^2 \operatorname{Sin}[c]\right)}{2 d^2 \left(\operatorname{Cos}[c]^2+\operatorname{Sin}[c]^2\right)}-\left(a b \operatorname{Csc}[c] \left(d^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[c]]} x^4-1\Big/\left(\sqrt{1+\operatorname{Cot}[c]^2}\right) \operatorname{Cot}[c] \left(i d x^2 \left(-\pi-2 \operatorname{ArcTan}[\operatorname{Cot}[c]]\right)-\pi \operatorname{Log}\left[1+e^{-2 i d x^2}\right]-2 \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right) \operatorname{Log}\left[1-e^{2 i \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right]+\pi \operatorname{Log}\left[\operatorname{Cos}\left[d x^2\right]\right]-2 \operatorname{ArcTan}[\operatorname{Cot}[c]] \operatorname{Log}\left[\operatorname{Sin}\left[d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right]\right]+i \operatorname{PolyLog}\left[2, e^{2 i \left(d x^2-\operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right]\right)\right) \operatorname{Sec}[c]\right)\Big/\left(2 d^2 \sqrt{\operatorname{Csc}[c]^2 \left(\operatorname{Cos}[c]^2+\operatorname{Sin}[c]^2\right)}\right)+\frac{b^2 x^2 \operatorname{Sec}[c] \operatorname{Sec}\left[c+d x^2\right] \operatorname{Sin}\left[d x^2\right]}{2 d}$$

Problem 19: Result more than twice size of optimal antiderivative.

$$\int \frac{x^3}{\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2}\,dx$$

Optimal (type 4, 202 leaves, 6 steps):

$$-\frac{x^4}{4\left(a^2+b^2\right)}+\frac{\left(b+2\,a\,d\,x^2\right)^2}{8\,a\,(a+i\,b)\left(a^2+b^2\right)d^2}+\frac{b\left(b+2\,a\,d\,x^2\right)\mathrm{Log}\left[1+\frac{\left(a^2+b^2\right)e^{2\,i\,\left(c+d\,x^2\right)}}{(a+i\,b)^2}\right]}{2\left(a^2+b^2\right)^2 d^2}-\frac{i\,a\,b\,\mathrm{PolyLog}\left[2,-\frac{\left(a^2+b^2\right)e^{2\,i\,\left(c+d\,x^2\right)}}{(a+i\,b)^2}\right]}{2\left(a^2+b^2\right)^2 d^2}-\frac{b\,x^2}{2\left(a^2+b^2\right)d\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)}$$

Result (type 4, 703 leaves):

$$\frac{\left(-c+d\,x^2\right)\left(c+d\,x^2\right)\mathrm{Sec}\left[c+d\,x^2\right]^2\left(a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right)^2}{4\,(a-i\,b)\,(a+i\,b)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2}+$$
$$\left(b^2\left(-b\left(c+d\,x^2\right)+a\,\mathrm{Log}\left[a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right]\right)\mathrm{Sec}\left[c+d\,x^2\right]^2\left(a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right)^2\right)\Big/$$
$$\left(2\,a\,(a-i\,b)\,(a+i\,b)\left(a^2+b^2\right)d^2\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2\right)-$$
$$\left(b\,c\left(-b\left(c+d\,x^2\right)+a\,\mathrm{Log}\left[a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right]\right)\mathrm{Sec}\left[c+d\,x^2\right]^2\left(a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right)^2\right)\Big/$$
$$\left((a-i\,b)\,(a+i\,b)\left(a^2+b^2\right)d^2\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2\right)-$$
$$\left(\left(e^{i\,\mathrm{ArcTan}\left[\frac{a}{b}\right]}\left(c+d\,x^2\right)^2+1\Big/\left(\sqrt{1+\frac{a^2}{b^2}}\;b\right)a\left(i\left(c+d\,x^2\right)\left(-\pi+2\,\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,\left(c+d\,x^2\right)}\right]-2\left(c+d\,x^2+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)\right.\right.\right.$$
$$\left.\left.\mathrm{Log}\left[1-e^{2\,i\,\left(c+d\,x^2+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)}\right]+\pi\,\mathrm{Log}\left[\mathrm{Cos}\left[c+d\,x^2\right]\right]+2\,\mathrm{ArcTan}\left[\frac{a}{b}\right]\mathrm{Log}\left[\mathrm{Sin}\left[c+d\,x^2+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right]\right]+i\,\mathrm{PolyLog}\left[2,e^{2\,i\,\left(c+d\,x^2+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)}\right]\right)\right)$$
$$\left.\mathrm{Sec}\left[c+d\,x^2\right]^2\left(a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right)^2\right)\Big/\left(2\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{a^2+b^2}{b^2}}\;d^2\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2\right)+$$
$$\frac{\mathrm{Sec}\left[c+d\,x^2\right]^2\left(a\,\mathrm{Cos}\left[c+d\,x^2\right]+b\,\mathrm{Sin}\left[c+d\,x^2\right]\right)\left(-b^2\,c\,\mathrm{Sin}\left[c+d\,x^2\right]+b^2\left(c+d\,x^2\right)\mathrm{Sin}\left[c+d\,x^2\right]\right)}{2\,a\,(a-i\,b)\,(a+i\,b)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\,x^2\right]\right)^2}$$

Problem 21: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{x}{(a+b\,\mathrm{Tan}[c+d\,x^2])^2}\,dx$$

Optimal (type 3, 94 leaves, 4 steps):

$$\frac{(a^2-b^2)\,x^2}{2\,(a^2+b^2)^2}+\frac{a\,b\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x^2]+b\,\mathrm{Sin}[c+d\,x^2]]}{(a^2+b^2)^2\,d}-\frac{b}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x^2])}$$

Result (type 3, 197 leaves):

$$\Big(a^2\,\big((a+i\,b)^2\,(c+d\,x^2)+a\,b\,\mathrm{Log}\big[(a\,\mathrm{Cos}[c+d\,x^2]+b\,\mathrm{Sin}[c+d\,x^2])^2\big]\big)+ b\,\big((a+i\,b)\,(-i\,b^2+a\,b\,(1+i\,c+i\,d\,x^2)+a^2\,(c+d\,x^2))+a^2\,b\,\mathrm{Log}\big[(a\,\mathrm{Cos}[c+d\,x^2]+b\,\mathrm{Sin}[c+d\,x^2])^2\big]\big)\,\mathrm{Tan}[c+d\,x^2]- 2\,i\,a^2\,b\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x^2]]\,(a+b\,\mathrm{Tan}[c+d\,x^2])\Big)\Big/\Big(2\,a\,(a^2+b^2)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x^2])\Big)$$

Problem 28: Result more than twice size of optimal antiderivative.

$$\int \left(a+b\,\mathrm{Tan}[c+d\,\sqrt{x}]\right)dx$$

Optimal (type 4, 66 leaves, 6 steps):

$$a\,x+i\,b\,x-\frac{2\,b\,\sqrt{x}\,\mathrm{Log}\left[1+e^{2\,i\,(c+d\,\sqrt{x})}\right]}{d}+\frac{i\,b\,\mathrm{PolyLog}\left[2,-e^{2\,i\,(c+d\,\sqrt{x})}\right]}{d^2}$$

Result (type 4, 199 leaves):

$$a\,x-\Big(b\,\mathrm{Csc}[c]\,\Big(d^2\,e^{-i\,\mathrm{ArcTan}[\mathrm{Cot}[c]]}\,x-1\Big/\Big(\sqrt{1+\mathrm{Cot}[c]^2}\Big)\mathrm{Cot}[c]\,\Big(i\,d\,\sqrt{x}\,(-\pi-2\,\mathrm{ArcTan}[\mathrm{Cot}[c]])-\pi\,\mathrm{Log}\left[1+e^{-2\,i\,d\,\sqrt{x}}\right]-2\,\big(d\,\sqrt{x}-\mathrm{ArcTan}[\mathrm{Cot}[c]]\big)\,\mathrm{Log}\left[1-e^{2\,i\,(d\,\sqrt{x}-\mathrm{ArcTan}[\mathrm{Cot}[c]])}\right]+\pi\,\mathrm{Log}\left[\mathrm{Cos}[d\,\sqrt{x}]\right]-2\,\mathrm{ArcTan}[\mathrm{Cot}[c]]\,\mathrm{Log}\left[\mathrm{Sin}[d\,\sqrt{x}-\mathrm{ArcTan}[\mathrm{Cot}[c]]]\right]+ i\,\mathrm{PolyLog}\left[2,e^{2\,i\,(d\,\sqrt{x}-\mathrm{ArcTan}[\mathrm{Cot}[c]])}\right]\Big)\Big)\,\mathrm{Sec}[c]\Big)\Big/\Big(d^2\,\sqrt{\mathrm{Csc}[c]^2\,(\mathrm{Cos}[c]^2+\mathrm{Sin}[c]^2)}\Big)+b\,x\,\mathrm{Tan}[c]$$

Problem 33: Result more than twice size of optimal antiderivative.

$$\int \left(a+b\,\mathrm{Tan}[c+d\,\sqrt{x}]\right)^2dx$$

Optimal (type 4, 119 leaves, 10 steps):

$$a^2\,x+2\,i\,a\,b\,x-b^2\,x-\frac{4\,a\,b\,\sqrt{x}\,\mathrm{Log}\left[1+e^{2\,i\,(c+d\,\sqrt{x})}\right]}{d}+\frac{2\,b^2\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,\sqrt{x}]\right]}{d^2}+\frac{2\,i\,a\,b\,\mathrm{PolyLog}\left[2,-e^{2\,i\,(c+d\,\sqrt{x})}\right]}{d^2}+\frac{2\,b^2\,\sqrt{x}\,\mathrm{Tan}[c+d\,\sqrt{x}]}{d}$$

Result (type 4, 308 leaves):

$$x \operatorname{Sec}[c] \left(a^2 \operatorname{Cos}[c] - b^2 \operatorname{Cos}[c] + 2 a b \operatorname{Sin}[c]\right) + \frac{2 b^2 \operatorname{Sec}[c] \left(\operatorname{Cos}[c] \operatorname{Log}\left[\operatorname{Cos}[c] \operatorname{Cos}\left[d \sqrt{x}\right] - \operatorname{Sin}[c] \operatorname{Sin}\left[d \sqrt{x}\right]\right] + d \sqrt{x} \operatorname{Sin}[c]\right)}{d^2 \left(\operatorname{Cos}[c]^2 + \operatorname{Sin}[c]^2\right)} -$$

$$\left(2 a b \operatorname{Csc}[c] \left(d^2 e^{-i \operatorname{ArcTan}[\operatorname{Cot}[c]]} x - 1 \middle/ \left(\sqrt{1 + \operatorname{Cot}[c]^2}\right) \operatorname{Cot}[c]\right.\right.$$

$$\left(i d \sqrt{x} \left(-\pi - 2 \operatorname{ArcTan}[\operatorname{Cot}[c]]\right) - \pi \operatorname{Log}\left[1 + e^{-2 i d \sqrt{x}}\right] - 2 \left(d \sqrt{x} - \operatorname{ArcTan}[\operatorname{Cot}[c]]\right) \operatorname{Log}\left[1 - e^{2 i \left(d \sqrt{x} - \operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right] +\right.$$

$$\left.\left.\left.\pi \operatorname{Log}\left[\operatorname{Cos}\left[d \sqrt{x}\right]\right] - 2 \operatorname{ArcTan}[\operatorname{Cot}[c]] \operatorname{Log}\left[\operatorname{Sin}\left[d \sqrt{x} - \operatorname{ArcTan}[\operatorname{Cot}[c]]\right]\right] + i \operatorname{PolyLog}\left[2, e^{2 i \left(d \sqrt{x} - \operatorname{ArcTan}[\operatorname{Cot}[c]]\right)}\right]\right)\right) \operatorname{Sec}[c]\right) \Big/$$

$$\left(d^2 \sqrt{\operatorname{Csc}[c]^2 \left(\operatorname{Cos}[c]^2 + \operatorname{Sin}[c]^2\right)}\right) + \frac{2 b^2 \sqrt{x} \operatorname{Sec}[c] \operatorname{Sec}\left[c + d \sqrt{x}\right] \operatorname{Sin}\left[d \sqrt{x}\right]}{d}$$

- **Problem 44: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{\left(a + b \operatorname{Tan}\left[c + d \sqrt{x}\right]\right)^2} \, dx$$

Optimal (type 4, 204 leaves, 6 steps):

$$\frac{\left(b + 2 a d \sqrt{x}\right)^2}{2 a (a + i b) \left(a^2 + b^2\right) d^2} - \frac{x}{a^2 + b^2} + \frac{2 b \left(b + 2 a d \sqrt{x}\right) \operatorname{Log}\left[1 + \frac{\left(a^2 + b^2\right) e^{2 i \left(c + d \sqrt{x}\right)}}{(a + i b)^2}\right]}{\left(a^2 + b^2\right)^2 d^2} -$$

$$\frac{2 i a b \operatorname{PolyLog}\left[2, -\frac{\left(a^2 + b^2\right) e^{2 i \left(c + d \sqrt{x}\right)}}{(a + i b)^2}\right]}{\left(a^2 + b^2\right)^2 d^2} - \frac{2 b \sqrt{x}}{\left(a^2 + b^2\right) d \left(a + b \operatorname{Tan}\left[c + d \sqrt{x}\right]\right)}$$

Result (type 4, 772 leaves):

$$\frac{\left(-c+d\sqrt{x}\right)\left(c+d\sqrt{x}\right)\mathrm{Sec}\left[c+d\sqrt{x}\right]^2\left(a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)^2}{(a-i\,b)\,(a+i\,b)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\sqrt{x}\right]\right)^2}+$$

$$\left(2\,b^2\left(-b\left(c+d\sqrt{x}\right)+a\,\mathrm{Log}\left[a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right]\right)\mathrm{Sec}\left[c+d\sqrt{x}\right]^2\left(a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)^2\right)\Big/$$
$$\left(a\,(a-i\,b)\,(a+i\,b)\,(a^2+b^2)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\sqrt{x}\right]\right)^2\right)-$$

$$\left(4\,b\,c\left(-b\left(c+d\sqrt{x}\right)+a\,\mathrm{Log}\left[a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right]\right)\mathrm{Sec}\left[c+d\sqrt{x}\right]^2\left(a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)^2\right)\Big/$$
$$\left((a-i\,b)\,(a+i\,b)\,(a^2+b^2)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\sqrt{x}\right]\right)^2\right)-$$

$$\left(2\left(e^{i\,\mathrm{ArcTan}\left[\frac{a}{b}\right]}\left(c+d\sqrt{x}\right)^2+1\Big/\left(\sqrt{1+\frac{a^2}{b^2}}\;b\right)a\left(i\left(c+d\sqrt{x}\right)\left(-\pi+2\,\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)-\pi\,\mathrm{Log}\left[1+e^{-2\,i\left(c+d\sqrt{x}\right)}\right]-2\left(c+d\sqrt{x}+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)\mathrm{Log}\left[1-\right.\right.\right.\right.$$
$$\left.\left.\left.e^{2\,i\left(c+d\sqrt{x}+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)}\right]+\pi\,\mathrm{Log}\left[\mathrm{Cos}\left[c+d\sqrt{x}\right]\right]+2\,\mathrm{ArcTan}\left[\frac{a}{b}\right]\mathrm{Log}\left[\mathrm{Sin}\left[c+d\sqrt{x}+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right]\right]+i\,\mathrm{PolyLog}\left[2,\,e^{2\,i\left(c+d\sqrt{x}+\mathrm{ArcTan}\left[\frac{a}{b}\right]\right)}\right]\right)\right)$$
$$\left.\mathrm{Sec}\left[c+d\sqrt{x}\right]^2\left(a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)^2\right)\Big/\left((a-i\,b)\,(a+i\,b)\sqrt{\frac{a^2+b^2}{b^2}}\;d^2\left(a+b\,\mathrm{Tan}\left[c+d\sqrt{x}\right]\right)^2\right)+$$

$$\left(2\,\mathrm{Sec}\left[c+d\sqrt{x}\right]^2\left(a\,\mathrm{Cos}\left[c+d\sqrt{x}\right]+b\,\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)\left(-b^2\,c\,\mathrm{Sin}\left[c+d\sqrt{x}\right]+b^2\left(c+d\sqrt{x}\right)\mathrm{Sin}\left[c+d\sqrt{x}\right]\right)\right)\Big/$$
$$\left(a\,(a-i\,b)\,(a+i\,b)\,d^2\left(a+b\,\mathrm{Tan}\left[c+d\sqrt{x}\right]\right)^2\right)$$

Test results for the 700 problems in "4.3.1.2 (d sec)^m (a+b tan)^n.m"

- **Problem 11: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^7\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 98 leaves, 5 steps):

$$\frac{5\,a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{16\,d}+\frac{i\,a\,\mathrm{Sec}[c+d\,x]^7}{7\,d}+\frac{5\,a\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{16\,d}+\frac{5\,a\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{24\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^5\,\mathrm{Tan}[c+d\,x]}{6\,d}$$

Result (type 3, 273 leaves):

$$-\frac{5\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}+\frac{5\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{16\,d}+\frac{i\,a\,\text{Sec}[c+d\,x]^7}{7\,d}+$$
$$\frac{a}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}+\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{5\,a}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-$$
$$\frac{a}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6}-\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{5\,a}{32\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

- **Problem 12: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^5\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 76 leaves, 4 steps) :

$$\frac{3\,a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{8\,d}+\frac{i\,a\,\text{Sec}[c+d\,x]^5}{5\,d}+\frac{3\,a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{8\,d}+\frac{a\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 209 leaves) :

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+$$
$$\frac{i\,a\,\text{Sec}[c+d\,x]^5}{5\,d}+\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-$$
$$\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

- **Problem 13: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 54 leaves, 3 steps) :

$$\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{i\,a\,\text{Sec}[c+d\,x]^3}{3\,d}+\frac{a\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}$$

Result (type 3, 145 leaves) :

$$-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{2\,d}+$$
$$\frac{i\,a\,\text{Sec}[c+d\,x]^3}{3\,d}+\frac{a}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

Problem 14: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$\frac{a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{d}+\frac{i\,a\,\mathrm{Sec}[c+d\,x]}{d}$$

Result (type 3, 84 leaves):

$$-\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{i\,a\,\mathrm{Sec}[c+d\,x]}{d}$$

Problem 22: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}{3\,a\,d}$$

Result (type 3, 68 leaves):

$$\frac{a^2\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^3\,(3\,i\,\mathrm{Cos}[d\,x]+3\,i\,\mathrm{Cos}[2\,c+d\,x]+3\,\mathrm{Sin}[d\,x]-3\,\mathrm{Sin}[2\,c+d\,x]+2\,\mathrm{Sin}[2\,c+3\,d\,x])}{6\,d}$$

Problem 23: Result more than twice size of optimal antiderivative.

$$\int (a+i\,a\,\mathrm{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 38 leaves, 2 steps):

$$2\,a^2\,x-\frac{2\,i\,a^2\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{a^2\,\mathrm{Tan}[c+d\,x]}{d}$$

Result (type 3, 100 leaves):

$$-\frac{1}{2\,d}a^2\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\Big(4\,\mathrm{ArcTan}[\mathrm{Tan}[3\,c+d\,x]]\,\mathrm{Cos}[c]\,\mathrm{Cos}[c+d\,x]-$$
$$4\,d\,x\,\mathrm{Cos}[2\,c+d\,x]+\mathrm{Cos}[d\,x]\,\left(-4\,d\,x+i\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\right)+i\,\mathrm{Cos}[2\,c+d\,x]\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]+2\,\mathrm{Sin}[d\,x]\Big)$$

Problem 29: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 94 leaves, 4 steps):

$$\frac{5\,a^2\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+\frac{5\,i\,a^2\,\mathrm{Sec}[c+d\,x]^3}{12\,d}+\frac{5\,a^2\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,d}+\frac{i\,\mathrm{Sec}[c+d\,x]^3\,\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}{4\,d}$$

Result (type 3, 215 leaves) :

$$\frac{1}{192\, d} a^2 \operatorname{Sec}[c+d x]^4 \left(128\, i \operatorname{Cos}[c+d x] - 45 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] - 60 \operatorname{Cos}[2(c+d x)] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] - \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right) - 15 \operatorname{Cos}[4(c+d x)] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] - \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right) + 45 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] - 18 \operatorname{Sin}[c+d x] + 30 \operatorname{Sin}[3(c+d x)]\right)$$

Problem 30: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x] (a + i a \operatorname{Tan}[c+d x])^2 \, dx$$

Optimal (type 3, 68 leaves, 3 steps) :

$$\frac{3 a^2 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 d} + \frac{3 i a^2 \operatorname{Sec}[c+d x]}{2 d} + \frac{i \operatorname{Sec}[c+d x] \left(a^2 + i a^2 \operatorname{Tan}[c+d x]\right)}{2 d}$$

Result (type 3, 146 leaves) :

$$-\frac{1}{4 d} a^2 \operatorname{Sec}[c+d x]^2 \left(-8 i \operatorname{Cos}[c+d x] + 3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] + 3 \operatorname{Cos}[2(c+d x)] \left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] - \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] - \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right) - 3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] + \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right] + 2 \operatorname{Sin}[c+d x]\right)$$

Problem 31: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cos}[c+d x] (a + i a \operatorname{Tan}[c+d x])^2 \, dx$$

Optimal (type 3, 46 leaves, 2 steps) :

$$-\frac{a^2 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d} - \frac{2 i \operatorname{Cos}[c+d x] \left(a^2 + i a^2 \operatorname{Tan}[c+d x]\right)}{d}$$

Result (type 3, 180 leaves) :

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}a^2\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(-2\,i+\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+\left(2-i\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+i\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+5\,d\,x)\right]+i\,\text{Sin}\left[\frac{1}{2}(c+5\,d\,x)\right]\right)$$

- **Problem 39: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{4\,a\,d}$$

Result (type 3, 84 leaves):

$$\frac{1}{4\,d}a^3\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^4\,(3\,i\,\text{Cos}[c]+2\,i\,\text{Cos}[c+2\,d\,x]+2\,i\,\text{Cos}[3\,c+2\,d\,x]-3\,\text{Sin}[c]+2\,\text{Sin}[c+2\,d\,x]-2\,\text{Sin}[3\,c+2\,d\,x]+\text{Sin}[3\,c+4\,d\,x])$$

- **Problem 41: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 49 leaves, 3 steps):

$$-a^3\,x+\frac{i\,a^3\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{2\,i\,a^4}{d\,(a-i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 99 leaves):

$$-\left(a^3\left(\text{Cos}[c+d\,x]\left(2\,i+2\,d\,x-i\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\right)+\left(-2-2\,i\,d\,x-\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\right)\text{Sin}[c+d\,x]\right)(\text{Cos}[c+4\,d\,x]+i\,\text{Sin}[c+4\,d\,x])\right)\Big/\left(2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right)$$

- **Problem 47: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 61 leaves, 3 steps):

$$-\frac{3\,a^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{3\,i\,a^3\,\text{Sec}[c+d\,x]}{d}-\frac{2\,i\,a\,\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{d}$$

Result (type 3, 123 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}a^3\,\text{Cos}[c+d\,x]^2\left(6\,\text{ArcTanh}\left[\text{Sin}[c]+\text{Cos}[c]\,\text{Tan}\left[\frac{d\,x}{2}\right]\right]\text{Cos}[c+d\,x]\,(i\,\text{Cos}[3\,c]+\text{Sin}[3\,c])+(-\text{Cos}[2\,c-d\,x]+i\,\text{Sin}[2\,c-d\,x])\,(5\,\text{Cos}[c+d\,x]-i\,\text{Sin}[c+d\,x])\right)(-i+\text{Tan}[c+d\,x])^3$$

Problem 54: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,dx$$

Optimal (type 3, 97 leaves, 4 steps) :

$$-\frac{15\,a^4\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{15\,i\,a^4\,\text{Sec}[c+d\,x]}{2\,d}-\frac{2\,i\,a\,\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{d}-\frac{5\,i\,\text{Sec}[c+d\,x]\,\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}{2\,d}$$

Result (type 3, 906 leaves) :

$$\frac{15\,\text{Cos}[4\,c]\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}-$$
$$\frac{15\,\text{Cos}[4\,c]\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}+$$
$$\frac{\text{Cos}[d\,x]\,\text{Cos}[c+d\,x]^4\,(-8\,i\,\text{Cos}[3\,c]-8\,\text{Sin}[3\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}+$$
$$\frac{\text{Cos}[c+d\,x]^4\,\text{Sec}[c]\,(-4\,i\,\text{Cos}[4\,c]-4\,\text{Sin}[4\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}-$$
$$\frac{15\,i\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sin}[4\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}+$$
$$\frac{15\,i\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sin}[4\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}+$$
$$\frac{\text{Cos}[c+d\,x]^4\,(8\,\text{Cos}[3\,c]-8\,i\,\text{Sin}[3\,c])\,\text{Sin}[d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4}+\frac{\text{Cos}[c+d\,x]^4\,\left(\frac{1}{4}\,\text{Cos}[4\,c]-\frac{1}{4}\,i\,\text{Sin}[4\,c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2}-$$
$$\frac{i\,\text{Cos}[c+d\,x]^4\,(4\,\text{Cos}[4\,c]-4\,i\,\text{Sin}[4\,c])\,\text{Sin}\left[\frac{d\,x}{2}\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$
$$\frac{\text{Cos}[c+d\,x]^4\,\left(-\frac{1}{4}\,\text{Cos}[4\,c]+\frac{1}{4}\,i\,\text{Sin}[4\,c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2}+\frac{i\,\text{Cos}[c+d\,x]^4\,(4\,\text{Cos}[4\,c]-4\,i\,\text{Sin}[4\,c])\,\text{Sin}\left[\frac{d\,x}{2}\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

Problem 55: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cos}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^4\,dx$$

Optimal (type 3, 78 leaves, 3 steps):

$$\frac{a^4\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{2\,i\,a\,\mathrm{Cos}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}{3\,d}+\frac{2\,i\,\mathrm{Cos}[c+d\,x]\,\left(a^4+i\,a^4\,\mathrm{Tan}[c+d\,x]\right)}{d}$$

Result (type 3, 246 leaves):

$$\frac{1}{3\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4}\,a^4\left(-3\,\mathrm{Cos}[4\,c]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+3\,\mathrm{Cos}[4\,c]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2\,\mathrm{Cos}[3\,d\,x]\,\mathrm{Sin}[c]+\right.$$
$$6\,\mathrm{Cos}[d\,x]\,\mathrm{Sin}[3\,c]+3\,i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sin}[4\,c]-$$
$$3\,i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sin}[4\,c]+\mathrm{Cos}[3\,c]\,(6\,i\,\mathrm{Cos}[d\,x]-6\,\mathrm{Sin}[d\,x])+$$
$$\left.6\,i\,\mathrm{Sin}[3\,c]\,\mathrm{Sin}[d\,x]-2\,i\,\mathrm{Sin}[c]\,\mathrm{Sin}[3\,d\,x]+2\,\mathrm{Cos}[c]\,(-i\,\mathrm{Cos}[3\,d\,x]+\mathrm{Sin}[3\,d\,x])\right)\,(\mathrm{Cos}[c+d\,x]+i\,\mathrm{Sin}[c+d\,x])^4$$

Problem 61: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^4\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5\,dx$$

Optimal (type 3, 55 leaves, 3 steps):

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^7}{7\,a^2\,d}+\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^8}{8\,a^3\,d}$$

Result (type 3, 143 leaves):

$$\frac{1}{56\,d}a^5\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^8\,(35\,i\,\mathrm{Cos}[c]+28\,i\,\mathrm{Cos}[c+2\,d\,x]+28\,i\,\mathrm{Cos}[3\,c+2\,d\,x]+14\,i\,\mathrm{Cos}[3\,c+4\,d\,x]+14\,i\,\mathrm{Cos}[5\,c+4\,d\,x]-$$
$$35\,\mathrm{Sin}[c]+28\,\mathrm{Sin}[c+2\,d\,x]-28\,\mathrm{Sin}[3\,c+2\,d\,x]+14\,\mathrm{Sin}[3\,c+4\,d\,x]-14\,\mathrm{Sin}[5\,c+4\,d\,x]+8\,\mathrm{Sin}[5\,c+6\,d\,x]+\mathrm{Sin}[7\,c+8\,d\,x])$$

Problem 62: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^6}{6\,a\,d}$$

Result (type 3, 134 leaves):

$$\frac{1}{12\,d}a^5\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^6\,(20\,i\,\text{Cos}[c]+15\,i\,\text{Cos}[c+2\,d\,x]+15\,i\,\text{Cos}[3\,c+2\,d\,x]+6\,i\,\text{Cos}[3\,c+4\,d\,x]+6\,i\,\text{Cos}[5\,c+4\,d\,x]-20\,\text{Sin}[c]+15\,\text{Sin}[c+2\,d\,x]-15\,\text{Sin}[3\,c+2\,d\,x]+6\,\text{Sin}[3\,c+4\,d\,x]-6\,\text{Sin}[5\,c+4\,d\,x]+2\,\text{Sin}[5\,c+6\,d\,x])$$

- **Problem 63: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[c+d\,x])^5\,dx$$

Optimal (type 3, 117 leaves, 5 steps):

$$16\,a^5\,x-\frac{16\,i\,a^5\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{8\,a^5\,\text{Tan}[c+d\,x]}{d}+\frac{2\,i\,a^2\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{3\,d}+\frac{i\,a\,(a+i\,a\,\text{Tan}[c+d\,x])^4}{4\,d}+\frac{2\,i\,a\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)^2}{d}$$

Result (type 3, 728 leaves):

$$\frac{16\,x\,\text{Cos}[5\,c]\,\text{Cos}[c+d\,x]^5\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}-\frac{8\,i\,\text{Cos}[5\,c]\,\text{Cos}[c+d\,x]^5\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}+$$
$$\frac{\text{Cos}[c+d\,x]^3\,(18\,\text{Cos}[c]+5\,i\,\text{Sin}[c])\,\left(-\frac{1}{3}\,i\,\text{Cos}[5\,c]-\frac{1}{3}\,\text{Sin}[5\,c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}+$$
$$\frac{\text{Cos}[c+d\,x]\,\left(\frac{1}{4}\,i\,\text{Cos}[5\,c]+\frac{1}{4}\,\text{Sin}[5\,c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}-\frac{16\,i\,x\,\text{Cos}[c+d\,x]^5\,\text{Sin}[5\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}-$$
$$\frac{8\,\text{Cos}[c+d\,x]^5\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}[5\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}+\frac{\text{Cos}[c+d\,x]^2\,\left(\frac{5}{3}\,\text{Cos}[5\,c]-\frac{5}{3}\,i\,\text{Sin}[5\,c]\right)\,\text{Sin}[d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}+$$
$$\frac{\text{Cos}[c+d\,x]^4\,\left(-\frac{50}{3}\,\text{Cos}[5\,c]+\frac{50}{3}\,i\,\text{Sin}[5\,c]\right)\,\text{Sin}[d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^5}{d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}+$$
$$\frac{1}{(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^5}\,x\,\text{Cos}[c+d\,x]^5\,\left(-8\,\text{Cos}[c]^3+8\,\text{Cos}[c]^5+32\,i\,\text{Cos}[c]^2\,\text{Sin}[c]-48\,i\,\text{Cos}[c]^4\,\text{Sin}[c]+48\,\text{Cos}[c]\,\text{Sin}[c]^2-120\,\text{Cos}[c]^3\,\text{Sin}[c]^2-32\,i\,\text{Sin}[c]^3+160\,i\,\text{Cos}[c]^2\,\text{Sin}[c]^3+120\,\text{Cos}[c]\,\text{Sin}[c]^4-48\,i\,\text{Sin}[c]^5-8\,\text{Sin}[c]^3\,\text{Tan}[c]-8\,\text{Sin}[c]^5\,\text{Tan}[c]+i\,(16\,\text{Cos}[5\,c]-16\,i\,\text{Sin}[5\,c])\,\text{Tan}[c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^5$$

- **Problem 64: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^5\,dx$$

Optimal (type 3, 83 leaves, 3 steps):

$$-12\,a^5\,x+\frac{12\,i\,a^5\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{5\,a^5\,\text{Tan}[c+d\,x]}{d}+\frac{i\,a^5\,\text{Tan}[c+d\,x]^2}{2\,d}-\frac{8\,i\,a^6}{d\,(a-i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 649 leaves):

$$-\frac{12\,x\,\mathrm{Cos}[5\,c]\,\mathrm{Cos}[c+d\,x]^5\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+\frac{6\,i\,\mathrm{Cos}[5\,c]\,\mathrm{Cos}[c+d\,x]^5\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+$$
$$\frac{\mathrm{Cos}[2\,d\,x]\,\mathrm{Cos}[c+d\,x]^5\,(-4\,i\,\mathrm{Cos}[3\,c]-4\,\mathrm{Sin}[3\,c])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+$$
$$\frac{\mathrm{Cos}[c+d\,x]^3\left(\frac{1}{2}\,i\,\mathrm{Cos}[5\,c]+\frac{1}{2}\,\mathrm{Sin}[5\,c]\right)(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+\frac{12\,i\,x\,\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[5\,c]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+$$
$$\frac{6\,\mathrm{Cos}[c+d\,x]^5\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[5\,c]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+\frac{\mathrm{Cos}[c+d\,x]^4\,(5\,\mathrm{Cos}[5\,c]-5\,i\,\mathrm{Sin}[5\,c])\,\mathrm{Sin}[d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+$$
$$\frac{\mathrm{Cos}[c+d\,x]^5\,(4\,\mathrm{Cos}[3\,c]-4\,i\,\mathrm{Sin}[3\,c])\,\mathrm{Sin}[2\,d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}+$$
$$\frac{1}{(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^5}\,x\,\mathrm{Cos}[c+d\,x]^5\,\Big(6\,\mathrm{Cos}[c]^3-6\,\mathrm{Cos}[c]^5-24\,i\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]+36\,i\,\mathrm{Cos}[c]^4\,\mathrm{Sin}[c]-$$
$$36\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^2+90\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]^2+24\,i\,\mathrm{Sin}[c]^3-120\,i\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^3-90\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^4+$$
$$36\,i\,\mathrm{Sin}[c]^5+6\,\mathrm{Sin}[c]^3\,\mathrm{Tan}[c]+6\,\mathrm{Sin}[c]^5\,\mathrm{Tan}[c]-i\,(12\,\mathrm{Cos}[5\,c]-12\,i\,\mathrm{Sin}[5\,c])\,\mathrm{Tan}[c]\Big)\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5$$

- **Problem 67: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cos}[c+d\,x]^8\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^5\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,a^9}{4\,d\,(a-i\,a\,\mathrm{Tan}[c+d\,x])^4}$$

Result (type 3, 73 leaves):

$$\frac{1}{64\,d}a^5\,(10\,\mathrm{Cos}[c+d\,x]+5\,\mathrm{Cos}[3\,(c+d\,x)]-i\,(2\,\mathrm{Sin}[c+d\,x]+3\,\mathrm{Sin}[3\,(c+d\,x)]))\,(-i\,\mathrm{Cos}[5\,(c+d\,x)]+\mathrm{Sin}[5\,(c+d\,x)])$$

- **Problem 77: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^8\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 109 leaves, 3 steps):

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{12}}{3\,a^4\,d}+\frac{12\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{13}}{13\,a^5\,d}-\frac{3\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{14}}{7\,a^6\,d}+\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{15}}{15\,a^7\,d}$$

Result (type 3, 245 leaves):

$$\frac{1}{10920\,d}a^8\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^{15}$$
$$(6435\,i\,\mathrm{Cos}[d\,x]+6435\,i\,\mathrm{Cos}[2\,c+d\,x]+5005\,i\,\mathrm{Cos}[2\,c+3\,d\,x]+5005\,i\,\mathrm{Cos}[4\,c+3\,d\,x]+3003\,i\,\mathrm{Cos}[4\,c+5\,d\,x]+3003\,i\,\mathrm{Cos}[6\,c+5\,d\,x]+1365\,i\,\mathrm{Cos}[6\,c+7\,d\,x]+1365\,i\,\mathrm{Cos}[8\,c+7\,d\,x]+6435\,\mathrm{Sin}[d\,x]-6435\,\mathrm{Sin}[2\,c+d\,x]+5005\,\mathrm{Sin}[2\,c+3\,d\,x]-5005\,\mathrm{Sin}[4\,c+3\,d\,x]+3003\,\mathrm{Sin}[4\,c+5\,d\,x]-3003\,\mathrm{Sin}[6\,c+5\,d\,x]+1365\,\mathrm{Sin}[6\,c+7\,d\,x]-1365\,\mathrm{Sin}[8\,c+7\,d\,x]+910\,\mathrm{Sin}[8\,c+9\,d\,x]+210\,\mathrm{Sin}[10\,c+11\,d\,x]+30\,\mathrm{Sin}[12\,c+13\,d\,x]+2\,\mathrm{Sin}[14\,c+15\,d\,x])$$

Problem 78: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^6\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 82 leaves, 3 steps):

$$-\frac{4\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{11}}{11\,a^3\,d}+\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{12}}{3\,a^4\,d}-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{13}}{13\,a^5\,d}$$

Result (type 3, 234 leaves):

$$\frac{1}{1716\,d}a^8\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^{13}$$
$$(1716\,i\,\mathrm{Cos}[d\,x]+1716\,i\,\mathrm{Cos}[2\,c+d\,x]+1287\,i\,\mathrm{Cos}[2\,c+3\,d\,x]+1287\,i\,\mathrm{Cos}[4\,c+3\,d\,x]+715\,i\,\mathrm{Cos}[4\,c+5\,d\,x]+715\,i\,\mathrm{Cos}[6\,c+5\,d\,x]+286\,i\,\mathrm{Cos}[6\,c+7\,d\,x]+286\,i\,\mathrm{Cos}[8\,c+7\,d\,x]+1716\,\mathrm{Sin}[d\,x]-1716\,\mathrm{Sin}[2\,c+d\,x]+1287\,\mathrm{Sin}[2\,c+3\,d\,x]-1287\,\mathrm{Sin}[4\,c+3\,d\,x]+715\,\mathrm{Sin}[4\,c+5\,d\,x]-715\,\mathrm{Sin}[6\,c+5\,d\,x]+286\,\mathrm{Sin}[6\,c+7\,d\,x]-286\,\mathrm{Sin}[8\,c+7\,d\,x]+156\,\mathrm{Sin}[8\,c+9\,d\,x]+26\,\mathrm{Sin}[10\,c+11\,d\,x]+2\,\mathrm{Sin}[12\,c+13\,d\,x])$$

Problem 79: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^4\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 55 leaves, 3 steps):

$$-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{10}}{5\,a^2\,d}+\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{11}}{11\,a^3\,d}$$

Result (type 3, 223 leaves):

$$\frac{1}{220\,d}a^8\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^{11}$$
$$(462\,i\,\mathrm{Cos}[d\,x]+462\,i\,\mathrm{Cos}[2\,c+d\,x]+330\,i\,\mathrm{Cos}[2\,c+3\,d\,x]+330\,i\,\mathrm{Cos}[4\,c+3\,d\,x]+165\,i\,\mathrm{Cos}[4\,c+5\,d\,x]+165\,i\,\mathrm{Cos}[6\,c+5\,d\,x]+55\,i\,\mathrm{Cos}[6\,c+7\,d\,x]+55\,i\,\mathrm{Cos}[8\,c+7\,d\,x]+462\,\mathrm{Sin}[d\,x]-462\,\mathrm{Sin}[2\,c+d\,x]+330\,\mathrm{Sin}[2\,c+3\,d\,x]-330\,\mathrm{Sin}[4\,c+3\,d\,x]+165\,\mathrm{Sin}[4\,c+5\,d\,x]-165\,\mathrm{Sin}[6\,c+5\,d\,x]+55\,\mathrm{Sin}[6\,c+7\,d\,x]-55\,\mathrm{Sin}[8\,c+7\,d\,x]+22\,\mathrm{Sin}[8\,c+9\,d\,x]+2\,\mathrm{Sin}[10\,c+11\,d\,x])$$

Problem 80: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^9}{9\,a\,d}$$

Result (type 3, 212 leaves):

$$\frac{1}{18\,d}a^8\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^9\,(126\,i\,\text{Cos}[d\,x]+126\,i\,\text{Cos}[2\,c+d\,x]+84\,i\,\text{Cos}[2\,c+3\,d\,x]+84\,i\,\text{Cos}[4\,c+3\,d\,x]+36\,i\,\text{Cos}[4\,c+5\,d\,x]+36\,i\,\text{Cos}[6\,c+5\,d\,x]+9\,i\,\text{Cos}[6\,c+7\,d\,x]+9\,i\,\text{Cos}[8\,c+7\,d\,x]+126\,\text{Sin}[d\,x]-126\,\text{Sin}[2\,c+d\,x]+84\,\text{Sin}[2\,c+3\,d\,x]-84\,\text{Sin}[4\,c+3\,d\,x]+36\,\text{Sin}[4\,c+5\,d\,x]-36\,\text{Sin}[6\,c+5\,d\,x]+9\,\text{Sin}[6\,c+7\,d\,x]-9\,\text{Sin}[8\,c+7\,d\,x]+2\,\text{Sin}[8\,c+9\,d\,x])$$

- **Problem 82: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 133 leaves, 3 steps):

$$-192\,a^8\,x+\frac{192\,i\,a^8\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{129\,a^8\,\text{Tan}[c+d\,x]}{d}+\frac{36\,i\,a^8\,\text{Tan}[c+d\,x]^2}{d}-\frac{10\,a^8\,\text{Tan}[c+d\,x]^3}{d}-\frac{2\,i\,a^8\,\text{Tan}[c+d\,x]^4}{d}+\frac{a^8\,\text{Tan}[c+d\,x]^5}{5\,d}-\frac{64\,i\,a^9}{d\,(a-i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 912 leaves):

$$-\frac{192\,x\,\mathrm{Cos}[8\,c]\,\mathrm{Cos}[c+d\,x]^8\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+\frac{96\,\mathrm{i}\,\mathrm{Cos}[8\,c]\,\mathrm{Cos}[c+d\,x]^8\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[2\,d\,x]\,\mathrm{Cos}[c+d\,x]^8\,(-32\,\mathrm{i}\,\mathrm{Cos}[6\,c]-32\,\mathrm{Sin}[6\,c])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^4\,\mathrm{Sec}[c]\,(10\,\mathrm{Cos}[c]+\mathrm{i}\,\mathrm{Sin}[c])\,\left(-\frac{1}{5}\,\mathrm{i}\,\mathrm{Cos}[8\,c]-\frac{1}{5}\,\mathrm{Sin}[8\,c]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^6\,\mathrm{Sec}[c]\,(50\,\mathrm{Cos}[c]+13\,\mathrm{i}\,\mathrm{Sin}[c])\,\left(\frac{4}{5}\,\mathrm{i}\,\mathrm{Cos}[8\,c]+\frac{4}{5}\,\mathrm{Sin}[8\,c]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{192\,\mathrm{i}\,x\,\mathrm{Cos}[c+d\,x]^8\,\mathrm{Sin}[8\,c]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+\frac{96\,\mathrm{Cos}[c+d\,x]^8\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[8\,c]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sec}[c]\,\left(\frac{1}{5}\,\mathrm{Cos}[8\,c]-\frac{1}{5}\,\mathrm{i}\,\mathrm{Sin}[8\,c]\right)\,\mathrm{Sin}[d\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sec}[c]\,\left(-\frac{52}{5}\,\mathrm{Cos}[8\,c]+\frac{52}{5}\,\mathrm{i}\,\mathrm{Sin}[8\,c]\right)\,\mathrm{Sin}[d\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^7\,\mathrm{Sec}[c]\,\left(\frac{696}{5}\,\mathrm{Cos}[8\,c]-\frac{696}{5}\,\mathrm{i}\,\mathrm{Sin}[8\,c]\right)\,\mathrm{Sin}[d\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{\mathrm{Cos}[c+d\,x]^8\,(32\,\mathrm{Cos}[6\,c]-32\,\mathrm{i}\,\mathrm{Sin}[6\,c])\,\mathrm{Sin}[2\,d\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}+$$

$$\frac{1}{(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^8}\,x\,\mathrm{Cos}[c+d\,x]^8\,\Big(96\,\mathrm{Cos}[c]^6-96\,\mathrm{Cos}[c]^8-672\,\mathrm{i}\,\mathrm{Cos}[c]^5\,\mathrm{Sin}[c]+864\,\mathrm{i}\,\mathrm{Cos}[c]^7\,\mathrm{Sin}[c]-2016\,\mathrm{Cos}[c]^4\,\mathrm{Sin}[c]^2+$$
$$3456\,\mathrm{Cos}[c]^6\,\mathrm{Sin}[c]^2+3360\,\mathrm{i}\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]^3-8064\,\mathrm{i}\,\mathrm{Cos}[c]^5\,\mathrm{Sin}[c]^3+3360\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^4-12\,096\,\mathrm{Cos}[c]^4\,\mathrm{Sin}[c]^4-$$
$$2016\,\mathrm{i}\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^5+12\,096\,\mathrm{i}\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]^5-672\,\mathrm{Sin}[c]^6+8064\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^6-3456\,\mathrm{i}\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^7-$$
$$864\,\mathrm{Sin}[c]^8+96\,\mathrm{i}\,\mathrm{Sin}[c]^6\,\mathrm{Tan}[c]+96\,\mathrm{i}\,\mathrm{Sin}[c]^8\,\mathrm{Tan}[c]-\mathrm{i}\,(192\,\mathrm{Cos}[8\,c]-192\,\mathrm{i}\,\mathrm{Sin}[8\,c])\,\mathrm{Tan}[c]\Big)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8$$

- **Problem 83: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cos}[c+d\,x]^4\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 124 leaves, 3 steps):

$$80\,a^8\,x-\frac{80\,\mathrm{i}\,a^8\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{31\,a^8\,\mathrm{Tan}[c+d\,x]}{d}-\frac{4\,\mathrm{i}\,a^8\,\mathrm{Tan}[c+d\,x]^2}{d}+\frac{a^8\,\mathrm{Tan}[c+d\,x]^3}{3\,d}-\frac{16\,\mathrm{i}\,a^{10}}{d\,(a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^2}+\frac{80\,\mathrm{i}\,a^9}{d\,(a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 566 leaves):

$$\frac{1}{12\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}\,a^8\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[2\,(c+5\,d\,x)]+i\,\text{Sin}[2\,(c+5\,d\,x)])$$
$$\big(-66\,i\,\text{Cos}[2\,c+3\,d\,x]+180\,d\,x\,\text{Cos}[2\,c+3\,d\,x]+75\,i\,\text{Cos}[4\,c+3\,d\,x]+180\,d\,x\,\text{Cos}[4\,c+3\,d\,x]-50\,i\,\text{Cos}[4\,c+5\,d\,x]+60\,d\,x\,\text{Cos}[4\,c+5\,d\,x]-3\,i\,\text{Cos}[6\,c+5\,d\,x]+60\,d\,x\,\text{Cos}[6\,c+5\,d\,x]+3\,\text{Cos}[2\,c+d\,x]\,\big(71\,i+80\,d\,x-40\,i\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\big)+\text{Cos}[d\,x]\,\big(119\,i+240\,d\,x-120\,i\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\big)-90\,i\,\text{Cos}[2\,c+3\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-90\,i\,\text{Cos}[4\,c+3\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-30\,i\,\text{Cos}[4\,c+5\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-30\,i\,\text{Cos}[6\,c+5\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-101\,\text{Sin}[d\,x]-120\,i\,d\,x\,\text{Sin}[d\,x]-60\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[d\,x]+87\,\text{Sin}[2\,c+d\,x]-120\,i\,d\,x\,\text{Sin}[2\,c+d\,x]-60\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[2\,c+d\,x]-96\,\text{Sin}[2\,c+3\,d\,x]-180\,i\,d\,x\,\text{Sin}[2\,c+3\,d\,x]-90\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[2\,c+3\,d\,x]+45\,\text{Sin}[4\,c+3\,d\,x]-180\,i\,d\,x\,\text{Sin}[4\,c+3\,d\,x]-90\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[4\,c+3\,d\,x]-44\,\text{Sin}[4\,c+5\,d\,x]-60\,i\,d\,x\,\text{Sin}[4\,c+5\,d\,x]-30\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[4\,c+5\,d\,x]+3\,\text{Sin}[6\,c+5\,d\,x]-60\,i\,d\,x\,\text{Sin}[6\,c+5\,d\,x]-30\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[6\,c+5\,d\,x]\big)$$

- **Problem 84: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^6\,(a+i\,a\,\text{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 114 leaves, 3 steps):

$$-8\,a^8\,x+\frac{8\,i\,a^8\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^8\,\text{Tan}[c+d\,x]}{d}-\frac{16\,i\,a^{11}}{3\,d\,(a-i\,a\,\text{Tan}[c+d\,x])^3}+\frac{16\,i\,a^{10}}{d\,(a-i\,a\,\text{Tan}[c+d\,x])^2}-\frac{24\,i\,a^9}{d\,(a-i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 414 leaves):

$$-\frac{1}{6\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}\,a^8\,\text{Sec}[c]\,\text{Sec}[c+d\,x]\,\big(12\,i\,\text{Cos}[c]+10\,i\,\text{Cos}[3\,c+2\,d\,x]+12\,d\,x\,\text{Cos}[3\,c+2\,d\,x]-2\,i\,\text{Cos}[3\,c+4\,d\,x]+12\,d\,x\,\text{Cos}[3\,c+4\,d\,x]+i\,\text{Cos}[5\,c+4\,d\,x]+12\,d\,x\,\text{Cos}[5\,c+4\,d\,x]+\text{Cos}[c+2\,d\,x]\,\big(7\,i+12\,d\,x-6\,i\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\big)-6\,i\,\text{Cos}[3\,c+2\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-6\,i\,\text{Cos}[3\,c+4\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-6\,i\,\text{Cos}[5\,c+4\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]+11\,\text{Sin}[c+2\,d\,x]-12\,i\,d\,x\,\text{Sin}[c+2\,d\,x]-6\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[c+2\,d\,x]+14\,\text{Sin}[3\,c+2\,d\,x]-12\,i\,d\,x\,\text{Sin}[3\,c+2\,d\,x]-6\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[3\,c+2\,d\,x]-4\,\text{Sin}[3\,c+4\,d\,x]-12\,i\,d\,x\,\text{Sin}[3\,c+4\,d\,x]-6\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[3\,c+4\,d\,x]-\text{Sin}[5\,c+4\,d\,x]-12\,i\,d\,x\,\text{Sin}[5\,c+4\,d\,x]-6\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sin}[5\,c+4\,d\,x]\big)\,(\text{Cos}[3\,c+11\,d\,x]+i\,\text{Sin}[3\,c+11\,d\,x])$$

- **Problem 88: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^{14}\,(a+i\,a\,\text{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$-\frac{i\,a^{15}}{7\,d\,(a-i\,a\,\text{Tan}[c+d\,x])^7}$$

Result (type 3, 116 leaves):

$$\big(a^8\,(35+56\,\text{Cos}[2\,(c+d\,x)]+28\,\text{Cos}[4\,(c+d\,x)]+8\,\text{Cos}[6\,(c+d\,x)]-14\,i\,\text{Sin}[2\,(c+d\,x)]-14\,i\,\text{Sin}[4\,(c+d\,x)]-6\,i\,\text{Sin}[6\,(c+d\,x)])\,(-i\,\text{Cos}[8\,(c+2\,d\,x)]+\text{Sin}[8\,(c+2\,d\,x)])\big)\Big/\big(896\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8\big)$$

Problem 92: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^3 (a+i a \text{Tan}[c+d x])^8 \, dx$$

Optimal (type 3, 205 leaves, 7 steps):

$$\frac{1155 a^8 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 d}+\frac{1155 i a^8 \text{Sec}[c+d x]}{8 d}+\frac{22 i a^3 \text{Cos}[c+d x] (a+i a \text{Tan}[c+d x])^5}{3 d}-\frac{2 i a \text{Cos}[c+d x]^3 (a+i a \text{Tan}[c+d x])^7}{3 d}+\frac{33 i a^2 \text{Sec}[c+d x] \left(a^2+i a^2 \text{Tan}[c+d x]\right)^3}{4 d}+\frac{77 i \text{Sec}[c+d x] \left(a^4+i a^4 \text{Tan}[c+d x]\right)^2}{4 d}+\frac{385 i \text{Sec}[c+d x] \left(a^8+i a^8 \text{Tan}[c+d x]\right)}{8 d}$$

Result (type 3, 1540 leaves):

$$-\frac{1155 \text{Cos}[8 c] \text{Cos}[c+d x]^8 \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] (a+i a \text{Tan}[c+d x])^8}{8 d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{1155 \text{Cos}[8 c] \text{Cos}[c+d x]^8 \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] (a+i a \text{Tan}[c+d x])^8}{8 d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{\text{Cos}[3 d x] \text{Cos}[c+d x]^8 \left(-\frac{32}{3} i \text{Cos}[5 c]-\frac{32}{3} \text{Sin}[5 c]\right) (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{\text{Cos}[d x] \text{Cos}[c+d x]^8 (160 i \text{Cos}[7 c]+160 \text{Sin}[7 c]) (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{1155 i \text{Cos}[c+d x]^8 \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sin}[8 c] (a+i a \text{Tan}[c+d x])^8}{8 d (\text{Cos}[d x]+i \text{Sin}[d x])^8}-$$
$$\frac{1155 i \text{Cos}[c+d x]^8 \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sin}[8 c] (a+i a \text{Tan}[c+d x])^8}{8 d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{\text{Cos}[c+d x]^8 \text{Sec}[c] \left(\frac{236}{3} i \text{Cos}[8 c]+\frac{236}{3} \text{Sin}[8 c]\right) (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{\text{Cos}[c+d x]^8 (-160 \text{Cos}[7 c]+160 i \text{Sin}[7 c]) \text{Sin}[d x] (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+$$
$$\frac{\text{Cos}[c+d x]^8 \left(\frac{32}{3} \text{Cos}[5 c]-\frac{32}{3} i \text{Sin}[5 c]\right) \text{Sin}[3 d x] (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8}+\frac{\text{Cos}[c+d x]^8 \left(\frac{1}{16} \text{Cos}[8 c]-\frac{1}{16} i \text{Sin}[8 c]\right) (a+i a \text{Tan}[c+d x])^8}{d (\text{Cos}[d x]+i \text{Sin}[d x])^8 \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^4}-$$
$$\frac{i \text{Cos}[c+d x]^8 \left(\frac{4}{3} \text{Cos}[8 c]-\frac{4}{3} i \text{Sin}[8 c]\right) \text{Sin}\left[\frac{d x}{2}\right] (a+i a \text{Tan}[c+d x])^8}{d \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^8 \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^3}+$$
$$\left(\text{Cos}[c+d x]^8 \left((-375-32 i) \text{Cos}\left[\frac{c}{2}\right]+(375-32 i) \text{Sin}\left[\frac{c}{2}\right]\right) \left(\frac{1}{48} \text{Cos}[8 c]-\frac{1}{48} i \text{Sin}[8 c]\right) (a+i a \text{Tan}[c+d x])^8\right) \Big/$$

$$\left(d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2\right)+$$

$$\frac{i\,\text{Cos}[c+d x]^8\left(\frac{236}{3}\text{Cos}[8 c]-\frac{236}{3}i\,\text{Sin}[8 c]\right)\text{Sin}\left[\frac{d x}{2}\right](a+i\,a\,\text{Tan}[c+d x])^8}{d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}+$$

$$\frac{\text{Cos}[c+d x]^8\left(-\frac{1}{16}\text{Cos}[8 c]+\frac{1}{16}i\,\text{Sin}[8 c]\right)(a+i\,a\,\text{Tan}[c+d x])^8}{d(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^4}+\frac{i\,\text{Cos}[c+d x]^8\left(\frac{4}{3}\text{Cos}[8 c]-\frac{4}{3}i\,\text{Sin}[8 c]\right)\text{Sin}\left[\frac{d x}{2}\right](a+i\,a\,\text{Tan}[c+d x])^8}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^3}+$$

$$\left(\text{Cos}[c+d x]^8\left((375-32 i)\,\text{Cos}\left[\frac{c}{2}\right]+(375+32 i)\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\frac{1}{48}\text{Cos}[8 c]-\frac{1}{48}i\,\text{Sin}[8 c]\right)(a+i\,a\,\text{Tan}[c+d x])^8\right)\Big/$$

$$\left(d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^2\right)-$$

$$\frac{i\,\text{Cos}[c+d x]^8\left(\frac{236}{3}\text{Cos}[8 c]-\frac{236}{3}i\,\text{Sin}[8 c]\right)\text{Sin}\left[\frac{d x}{2}\right](a+i\,a\,\text{Tan}[c+d x])^8}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)}$$

Problem 93: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^5\,(a+i\,a\,\text{Tan}[c+d x])^8\,dx$$

Optimal (type 3, 173 leaves, 6 steps):

$$-\frac{63\,a^8\,\text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}-\frac{63\,i\,a^8\,\text{Sec}[c+d x]}{2 d}+\frac{6\,i\,a^3\,\text{Cos}[c+d x]^3\,(a+i\,a\,\text{Tan}[c+d x])^5}{5 d}-$$

$$\frac{2\,i\,a\,\text{Cos}[c+d x]^5\,(a+i\,a\,\text{Tan}[c+d x])^7}{5 d}-\frac{42\,i\,a^2\,\text{Cos}[c+d x]\left(a^2+i\,a^2\,\text{Tan}[c+d x]\right)^3}{5 d}-\frac{21\,i\,\text{Sec}[c+d x]\left(a^8+i\,a^8\,\text{Tan}[c+d x]\right)}{2 d}$$

Result (type 3, 1162 leaves):

$$\frac{63\,\text{Cos}[8\,c]\,\text{Cos}[c+d\,x]^8\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}-$$

$$\frac{63\,\text{Cos}[8\,c]\,\text{Cos}[c+d\,x]^8\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[5\,d\,x]\,\text{Cos}[c+d\,x]^8\left(-\frac{8}{5}\,i\,\text{Cos}[3\,c]-\frac{8}{5}\,\text{Sin}[3\,c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[3\,d\,x]\,\text{Cos}[c+d\,x]^8\,(8\,i\,\text{Cos}[5\,c]+8\,\text{Sin}[5\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[d\,x]\,\text{Cos}[c+d\,x]^8\,(-48\,i\,\text{Cos}[7\,c]-48\,\text{Sin}[7\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[c+d\,x]^8\,\text{Sec}[c]\,(-8\,i\,\text{Cos}[8\,c]-8\,\text{Sin}[8\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}-$$

$$\frac{63\,i\,\text{Cos}[c+d\,x]^8\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sin}[8\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{63\,i\,\text{Cos}[c+d\,x]^8\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sin}[8\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[c+d\,x]^8\,(48\,\text{Cos}[7\,c]-48\,i\,\text{Sin}[7\,c])\,\text{Sin}[d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[c+d\,x]^8\,(-8\,\text{Cos}[5\,c]+8\,i\,\text{Sin}[5\,c])\,\text{Sin}[3\,d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+$$

$$\frac{\text{Cos}[c+d\,x]^8\left(\frac{8}{5}\,\text{Cos}[3\,c]-\frac{8}{5}\,i\,\text{Sin}[3\,c]\right)\text{Sin}[5\,d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8}+\frac{\text{Cos}[c+d\,x]^8\left(\frac{1}{4}\,\text{Cos}[8\,c]-\frac{1}{4}\,i\,\text{Sin}[8\,c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2}-$$

$$\frac{i\,\text{Cos}[c+d\,x]^8\,(8\,\text{Cos}[8\,c]-8\,i\,\text{Sin}[8\,c])\,\text{Sin}\left[\frac{d\,x}{2}\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}+$$

$$\frac{\text{Cos}[c+d\,x]^8\left(-\frac{1}{4}\,\text{Cos}[8\,c]+\frac{1}{4}\,i\,\text{Sin}[8\,c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2}+\frac{i\,\text{Cos}[c+d\,x]^8\,(8\,\text{Cos}[8\,c]-8\,i\,\text{Sin}[8\,c])\,\text{Sin}\left[\frac{d\,x}{2}\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^8}{d\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^8\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)}$$

- **Problem 94: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]^7\,(a+i\,a\,\text{Tan}[c+d\,x])^8\,dx$$

Optimal (type 3, 152 leaves, 5 steps) :

$$\frac{a^8 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}+\frac{2 i a^3 \text{Cos}[c+d x]^5 (a+i a \text{Tan}[c+d x])^5}{5 d}-\frac{2 i a \text{Cos}[c+d x]^7 (a+i a \text{Tan}[c+d x])^7}{7 d}-\frac{2 i a^2 \text{Cos}[c+d x]^3 \left(a^2+i a^2 \text{Tan}[c+d x]\right)^3}{3 d}+\frac{2 i \text{Cos}[c+d x] \left(a^8+i a^8 \text{Tan}[c+d x]\right)}{d}$$

Result (type 3, 305 leaves):

$$\frac{1}{105 d (\text{Cos}[d x]+i \text{Sin}[d x])^8} a^8 \left(-70 i \text{Cos}\left[\frac{1}{2} (c+d x)\right]+42 i \text{Cos}\left[\frac{3}{2} (c+d x)\right]+210 i \text{Cos}\left[\frac{5}{2} (c+d x)\right]-30 i \text{Cos}\left[\frac{7}{2} (c+d x)\right]-105 \text{Cos}\left[\frac{7}{2} (c+d x)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+105 \text{Cos}\left[\frac{7}{2} (c+d x)\right] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-70 \text{Sin}\left[\frac{1}{2} (c+d x)\right]-42 \text{Sin}\left[\frac{3}{2} (c+d x)\right]+210 \text{Sin}\left[\frac{5}{2} (c+d x)\right]+30 \text{Sin}\left[\frac{7}{2} (c+d x)\right]+105 i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}\left[\frac{7}{2} (c+d x)\right]-105 i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}\left[\frac{7}{2} (c+d x)\right]\right) \left(\text{Cos}\left[\frac{1}{2} (7 c+23 d x)\right]+i \text{Sin}\left[\frac{1}{2} (7 c+23 d x)\right]\right)$$

- **Problem 116: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c+d x]^6}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$\frac{i (a-i a \text{Tan}[c+d x])^3}{3 a^5 d}$$

Result (type 3, 68 leaves):

$$\frac{\text{Sec}[c] \text{Sec}[c+d x]^3 (-3 i \text{Cos}[d x]-3 i \text{Cos}[2 c+d x]+3 \text{Sin}[d x]-3 \text{Sin}[2 c+d x]+2 \text{Sin}[2 c+3 d x])}{6 a^2 d}$$

- **Problem 122: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c+d x]^9}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 124 leaves, 5 steps):

$$\frac{7 \text{ArcTanh}[\text{Sin}[c+d x]]}{16 a^2 d}+\frac{7 \text{Sec}[c+d x] \text{Tan}[c+d x]}{16 a^2 d}+\frac{7 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{24 a^2 d}+\frac{7 \text{Sec}[c+d x]^5 \text{Tan}[c+d x]}{30 a^2 d}-\frac{2 i \text{Sec}[c+d x]^7}{5 d \left(a^2+i a^2 \text{Tan}[c+d x]\right)}$$

Result (type 3, 294 leaves):

$$-\frac{1}{7680\,a^2\,d}\,\mathrm{Sec}[c+d\,x]^6\left(3072\,i\,\mathrm{Cos}[c+d\,x]+5\left(210\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+21\,\mathrm{Cos}[6(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+315\,\mathrm{Cos}[2(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+126\,\mathrm{Cos}[4(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)-210\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-21\,\mathrm{Cos}[6(c+d\,x)]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+60\,\mathrm{Sin}[c+d\,x]-238\,\mathrm{Sin}[3(c+d\,x)]-42\,\mathrm{Sin}[5(c+d\,x)]\right)\right)$$

- **Problem 123: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^7}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 100 leaves, 4 steps):

$$\frac{5\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,a^2\,d}+\frac{5\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,a^2\,d}+\frac{5\,\mathrm{Sec}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]}{12\,a^2\,d}-\frac{2\,i\,\mathrm{Sec}[c+d\,x]^5}{3\,d\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 3, 215 leaves):

$$-\frac{1}{192\,a^2\,d}\,\mathrm{Sec}[c+d\,x]^4\left(128\,i\,\mathrm{Cos}[c+d\,x]+45\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+60\,\mathrm{Cos}[2(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)+15\,\mathrm{Cos}[4(c+d\,x)]\left(\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\right)-45\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]+18\,\mathrm{Sin}[c+d\,x]-30\,\mathrm{Sin}[3(c+d\,x)]\right)$$

- **Problem 125: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^3}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 48 leaves, 2 steps):

$$-\frac{\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{a^2\,d}+\frac{2\,i\,\mathrm{Sec}[c+d\,x]}{d\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 3, 184 leaves):

$$-\frac{1}{a^2 d\,(-i+\mathrm{Tan}[c+d x])^2}$$

$$\mathrm{Sec}[c+d x]^2\left(\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]\left(2 i+\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)+\right.$$
$$\left.\left(2+i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)\mathrm{Sin}\left[\frac{1}{2}(c+d x)\right]\right)$$
$$\left(\mathrm{Cos}\left[\frac{3}{2}(c+d x)\right]+i\,\mathrm{Sin}\left[\frac{3}{2}(c+d x)\right]\right)$$

- **Problem 133: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d x]^8}{(a+i\,a\,\mathrm{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 27 leaves, 2 steps) :

$$\frac{i\,(a-i\,a\,\mathrm{Tan}[c+d x])^4}{4\,a^7\,d}$$

Result (type 3, 84 leaves) :

$$\frac{1}{4\,a^3\,d}\mathrm{Sec}[c]\,\mathrm{Sec}[c+d x]^4\,(-3\,i\,\mathrm{Cos}[c]-2\,i\,\mathrm{Cos}[c+2 d x]-2\,i\,\mathrm{Cos}[3 c+2 d x]-3\,\mathrm{Sin}[c]+2\,\mathrm{Sin}[c+2 d x]-2\,\mathrm{Sin}[3 c+2 d x]+\mathrm{Sin}[3 c+4 d x])$$

- **Problem 149: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d x]^{12}}{(a+i\,a\,\mathrm{Tan}[c+d x])^4}\,dx$$

Optimal (type 3, 55 leaves, 3 steps) :

$$\frac{i\,(a-i\,a\,\mathrm{Tan}[c+d x])^6}{3\,a^{10}\,d}-\frac{i\,(a-i\,a\,\mathrm{Tan}[c+d x])^7}{7\,a^{11}\,d}$$

Result (type 3, 127 leaves) :

$$\frac{1}{84\,a^4\,d}\mathrm{Sec}[c]\,\mathrm{Sec}[c+d x]^7\,(-35\,i\,\mathrm{Cos}[d x]-35\,i\,\mathrm{Cos}[2 c+d x]-21\,i\,\mathrm{Cos}[2 c+3 d x]-21\,i\,\mathrm{Cos}[4 c+3 d x]+$$
$$35\,\mathrm{Sin}[d x]-35\,\mathrm{Sin}[2 c+d x]+21\,\mathrm{Sin}[2 c+3 d x]-21\,\mathrm{Sin}[4 c+3 d x]+14\,\mathrm{Sin}[4 c+5 d x]+2\,\mathrm{Sin}[6 c+7 d x])$$

- **Problem 150: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d x]^{10}}{(a+i\,a\,\mathrm{Tan}[c+d x])^4}\,dx$$

Optimal (type 3, 27 leaves, 2 steps) :

$$\frac{i\,(a-i\,a\,\mathrm{Tan}[c+d x])^5}{5\,a^9\,d}$$

Result (type 3, 116 leaves) :

$$\frac{1}{10\,a^4\,d}\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^5\,(-10\,i\,\mathrm{Cos}[d\,x]-10\,i\,\mathrm{Cos}[2\,c+d\,x]-5\,i\,\mathrm{Cos}[2\,c+3\,d\,x]-5\,i\,\mathrm{Cos}[4\,c+3\,d\,x]+10\,\mathrm{Sin}[d\,x]-10\,\mathrm{Sin}[2\,c+d\,x]+5\,\mathrm{Sin}[2\,c+3\,d\,x]-5\,\mathrm{Sin}[4\,c+3\,d\,x]+2\,\mathrm{Sin}[4\,c+5\,d\,x])$$

Problem 152: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d\,x]^6}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 63 leaves, 3 steps) :

$$-\frac{4\,x}{a^4}-\frac{4\,i\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{a^4\,d}+\frac{\mathrm{Tan}[c+d\,x]}{a^4\,d}+\frac{4\,i}{d\,\left(a^4+i\,a^4\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 3, 214 leaves) :

$$\frac{1}{2\,a^4\,d}\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,(-\mathrm{Cos}[c+d\,x]+i\,\mathrm{Sin}[c+d\,x])\,(-i\,\mathrm{Cos}[3\,c+2\,d\,x]+2\,d\,x\,\mathrm{Cos}[3\,c+2\,d\,x]+2\,\mathrm{Cos}[c+2\,d\,x]\,(d\,x+i\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]])+\mathrm{Cos}[c]\,(-3\,i+4\,d\,x+4\,i\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]])+2\,i\,\mathrm{Cos}[3\,c+2\,d\,x]\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]+\mathrm{Sin}[c]-2\,\mathrm{Sin}[c+2\,d\,x]+2\,i\,d\,x\,\mathrm{Sin}[c+2\,d\,x]-2\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sin}[c+2\,d\,x]-\mathrm{Sin}[3\,c+2\,d\,x]+2\,i\,d\,x\,\mathrm{Sin}[3\,c+2\,d\,x]-2\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sin}[3\,c+2\,d\,x])$$

Problem 154: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d\,x]^2}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 27 leaves, 2 steps) :

$$\frac{i}{3\,a\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}$$

Result (type 3, 56 leaves) :

$$\frac{i\,\mathrm{Sec}[c+d\,x]^4\,(3+4\,\mathrm{Cos}[2\,(c+d\,x)]+2\,i\,\mathrm{Sin}[2\,(c+d\,x)])}{24\,a^4\,d\,(-i+\mathrm{Tan}[c+d\,x])^4}$$

Problem 159: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d\,x]^7}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 107 leaves, 4 steps) :

$$-\frac{15\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{2\,a^4\,d}-\frac{15\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{2\,a^4\,d}+\frac{2\,i\,\mathrm{Sec}[c+d\,x]^5}{a\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}+\frac{10\,i\,\mathrm{Sec}[c+d\,x]^3}{d\,\left(a^4+i\,a^4\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 3, 988 leaves) :

$$\frac{15\,\mathrm{Cos}[4c]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right]\mathrm{Sec}[c+dx]^4\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{2d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}-$$

$$\frac{15\,\mathrm{Cos}[4c]\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right]\mathrm{Sec}[c+dx]^4\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{2d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\frac{\mathrm{Cos}[dx]\,\mathrm{Sec}[c+dx]^4\,(8\,i\,\mathrm{Cos}[3c]-8\,\mathrm{Sin}[3c])\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\frac{\mathrm{Sec}[c]\,\mathrm{Sec}[c+dx]^4\,(4\,i\,\mathrm{Cos}[4c]-4\,\mathrm{Sin}[4c])\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\frac{15\,i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right]\mathrm{Sec}[c+dx]^4\,\mathrm{Sin}[4c]\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{2d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}-$$

$$\frac{15\,i\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right]\mathrm{Sec}[c+dx]^4\,\mathrm{Sin}[4c]\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{2d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\frac{\mathrm{Sec}[c+dx]^4\,(8\,\mathrm{Cos}[3c]+8\,i\,\mathrm{Sin}[3c])\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4\,\mathrm{Sin}[dx]}{d\,(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\frac{\mathrm{Sec}[c+dx]^4\left(\frac{1}{4}\mathrm{Cos}[4c]+\frac{1}{4}i\,\mathrm{Sin}[4c]\right)(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{d\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^2(a+i\,a\,\mathrm{Tan}[c+dx])^4}+\frac{\mathrm{Sec}[c+dx]^4\left(-\frac{1}{4}\mathrm{Cos}[4c]-\frac{1}{4}i\,\mathrm{Sin}[4c]\right)(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4}{d\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)^2(a+i\,a\,\mathrm{Tan}[c+dx])^4}+$$

$$\left(4\,\mathrm{Sec}[c+dx]^4\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4\left(\frac{1}{2}\mathrm{Cos}\left[4c-\frac{dx}{2}\right]-\frac{1}{2}\mathrm{Cos}\left[4c+\frac{dx}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[4c-\frac{dx}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[4c+\frac{dx}{2}\right]\right)\right)\Big/$$

$$\left(d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)(a+i\,a\,\mathrm{Tan}[c+dx])^4\right)+$$

$$\left(4\,\mathrm{Sec}[c+dx]^4\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^4\left(-\frac{1}{2}\mathrm{Cos}\left[4c-\frac{dx}{2}\right]+\frac{1}{2}\mathrm{Cos}\left[4c+\frac{dx}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[4c-\frac{dx}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[4c+\frac{dx}{2}\right]\right)\right)\Big/$$

$$\left(d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{dx}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{dx}{2}\right]\right)(a+i\,a\,\mathrm{Tan}[c+dx])^4\right)$$

- **Problem 160: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+dx]^5}{(a+i\,a\,\mathrm{Tan}[c+dx])^4}\,dx$$

Optimal (type 3, 82 leaves, 3 steps):

$$\frac{\mathrm{ArcTanh}[\mathrm{Sin}[c+dx]]}{a^4\,d}+\frac{2\,i\,\mathrm{Sec}[c+dx]^3}{3\,a\,d\,(a+i\,a\,\mathrm{Tan}[c+dx])^3}-\frac{2\,i\,\mathrm{Sec}[c+dx]}{d\left(a^4+i\,a^4\,\mathrm{Tan}[c+dx]\right)}$$

Result (type 3, 247 leaves):

$$\frac{1}{3 a^4 d (-i+\text{Tan}[c+d x])^4}\text{Sec}[c+d x]^4 (\text{Cos}[d x]+i \text{Sin}[d x])^4 \left(-3 \text{Cos}[4 c] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+3 \text{Cos}[4 c] \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-2 \text{Cos}[3 d x] \text{Sin}[c]+6 \text{Cos}[d x] \text{Sin}[3 c]-3 i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[4 c]+3 i \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] \text{Sin}[4 c]+\text{Cos}[3 c] (-6 i \text{Cos}[d x]-6 \text{Sin}[d x])-6 i \text{Sin}[3 c] \text{Sin}[d x]+2 i \text{Sin}[c] \text{Sin}[3 d x]+2 \text{Cos}[c] (i \text{Cos}[3 d x]+\text{Sin}[3 d x])\right)$$

- **Problem 166: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c+d x]^{14}}{(a+i a \text{Tan}[c+d x])^8} \, dx$$

Optimal (type 3, 134 leaves, 3 steps):

$$-\frac{192 x}{a^8}-\frac{192 i \text{Log}[\text{Cos}[c+d x]]}{a^8 d}+\frac{129 \text{Tan}[c+d x]}{a^8 d}-\frac{36 i \text{Tan}[c+d x]^2}{a^8 d}-\frac{10 \text{Tan}[c+d x]^3}{a^8 d}+\frac{2 i \text{Tan}[c+d x]^4}{a^8 d}+\frac{\text{Tan}[c+d x]^5}{5 a^8 d}+\frac{64 i}{d \left(a^8+i a^8 \text{Tan}[c+d x]\right)}$$

Result (type 3, 599 leaves):

$$\frac{1}{20 a^8 d (-i+\text{Tan}[c+d x])^8}\text{Sec}[c] \text{Sec}[c+d x]^{13} (-\text{Cos}[7 (c+d x)]-i \text{Sin}[7 (c+d x)]) (-220 i \text{Cos}[3 c+2 d x]+900 d x \text{Cos}[3 c+2 d x]+238 i \text{Cos}[3 c+4 d x]+360 d x \text{Cos}[3 c+4 d x]-110 i \text{Cos}[5 c+4 d x]+360 d x \text{Cos}[5 c+4 d x]+77 i \text{Cos}[5 c+6 d x]+60 d x \text{Cos}[5 c+6 d x]-10 i \text{Cos}[7 c+6 d x]+60 d x \text{Cos}[7 c+6 d x]+10 \text{Cos}[c] (-7 i+120 d x+120 i \text{Log}[\text{Cos}[c+d x]])+5 \text{Cos}[c+2 d x] (43 i+180 d x+180 i \text{Log}[\text{Cos}[c+d x]])+900 i \text{Cos}[3 c+2 d x] \text{Log}[\text{Cos}[c+d x]]+360 i \text{Cos}[3 c+4 d x] \text{Log}[\text{Cos}[c+d x]]+360 i \text{Cos}[5 c+4 d x] \text{Log}[\text{Cos}[c+d x]]+60 i \text{Cos}[5 c+6 d x] \text{Log}[\text{Cos}[c+d x]]+60 i \text{Cos}[7 c+6 d x] \text{Log}[\text{Cos}[c+d x]]+870 \text{Sin}[c]-985 \text{Sin}[c+2 d x]+300 i d x \text{Sin}[c+2 d x]-300 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[c+2 d x]+320 \text{Sin}[3 c+2 d x]+300 i d x \text{Sin}[3 c+2 d x]-300 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[3 c+2 d x]-512 \text{Sin}[3 c+4 d x]+240 i d x \text{Sin}[3 c+4 d x]-240 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[3 c+4 d x]+10 \text{Sin}[5 c+4 d x]+240 i d x \text{Sin}[5 c+4 d x]-240 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[5 c+4 d x]-97 \text{Sin}[5 c+6 d x]+60 i d x \text{Sin}[5 c+6 d x]-60 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[5 c+6 d x]-10 \text{Sin}[7 c+6 d x]+60 i d x \text{Sin}[7 c+6 d x]-60 \text{Log}[\text{Cos}[c+d x]] \text{Sin}[7 c+6 d x])$$

- **Problem 167: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c+d x]^{12}}{(a+i a \text{Tan}[c+d x])^8} \, dx$$

Optimal (type 3, 126 leaves, 3 steps):

$$\frac{80 x}{a^8}+\frac{80 i \text{Log}[\text{Cos}[c+d x]]}{a^8 d}-\frac{31 \text{Tan}[c+d x]}{a^8 d}+\frac{4 i \text{Tan}[c+d x]^2}{a^8 d}+\frac{\text{Tan}[c+d x]^3}{3 a^8 d}+\frac{16 i}{d \left(a^4+i a^4 \text{Tan}[c+d x]\right)^2}-\frac{80 i}{d \left(a^8+i a^8 \text{Tan}[c+d x]\right)}$$

Result (type 3, 537 leaves):

$$\frac{1}{12 a^8 d (-i + \text{Tan}[c + d x])^8} \text{Sec}[c] \text{Sec}[c + d x]^{11} (\text{Cos}[6 (c + d x)] + i \text{Sin}[6 (c + d x)])$$
$$(66 i \text{Cos}[2 c + 3 d x] + 180 d x \text{Cos}[2 c + 3 d x] - 75 i \text{Cos}[4 c + 3 d x] + 180 d x \text{Cos}[4 c + 3 d x] + 50 i \text{Cos}[4 c + 5 d x] + 60 d x \text{Cos}[4 c + 5 d x] + 3 i \text{Cos}[6 c + 5 d x] + 60 d x \text{Cos}[6 c + 5 d x] + 3 \text{Cos}[2 c + d x] (-71 i + 80 d x + 80 i \text{Log}[\text{Cos}[c + d x]]) + \text{Cos}[d x] (-119 i + 240 d x + 240 i \text{Log}[\text{Cos}[c + d x]]) + 180 i \text{Cos}[2 c + 3 d x] \text{Log}[\text{Cos}[c + d x]] + 180 i \text{Cos}[4 c + 3 d x] \text{Log}[\text{Cos}[c + d x]] + 60 i \text{Cos}[4 c + 5 d x] \text{Log}[\text{Cos}[c + d x]] + 60 i \text{Cos}[6 c + 5 d x] \text{Log}[\text{Cos}[c + d x]] - 101 \text{Sin}[d x] + 120 i d x \text{Sin}[d x] - 120 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[d x] + 87 \text{Sin}[2 c + d x] + 120 i d x \text{Sin}[2 c + d x] - 120 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[2 c + d x] - 96 \text{Sin}[2 c + 3 d x] + 180 i d x \text{Sin}[2 c + 3 d x] - 180 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[2 c + 3 d x] + 45 \text{Sin}[4 c + 3 d x] + 180 i d x \text{Sin}[4 c + 3 d x] - 180 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[4 c + 3 d x] - 44 \text{Sin}[4 c + 5 d x] + 60 i d x \text{Sin}[4 c + 5 d x] - 60 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[4 c + 5 d x] + 3 \text{Sin}[6 c + 5 d x] + 60 i d x \text{Sin}[6 c + 5 d x] - 60 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[6 c + 5 d x])$$

- **Problem 168: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c + d x]^{10}}{(a + i a \text{Tan}[c + d x])^8} \, dx$$

Optimal (type 3, 116 leaves, 3 steps):

$$-\frac{8 x}{a^8} - \frac{8 i \text{Log}[\text{Cos}[c + d x]]}{a^8 d} + \frac{\text{Tan}[c + d x]}{a^8 d} + \frac{16 i}{3 a^5 d (a + i a \text{Tan}[c + d x])^3} - \frac{16 i}{d \left(a^4 + i a^4 \text{Tan}[c + d x]\right)^2} + \frac{24 i}{d \left(a^8 + i a^8 \text{Tan}[c + d x]\right)}$$

Result (type 3, 397 leaves):

$$\frac{1}{6 a^8 d (-i + \text{Tan}[c + d x])^8} \text{Sec}[c] \text{Sec}[c + d x]^9 (-\text{Cos}[5 (c + d x)] - i \text{Sin}[5 (c + d x)])$$
$$(-12 i \text{Cos}[c] - 10 i \text{Cos}[3 c + 2 d x] + 12 d x \text{Cos}[3 c + 2 d x] + 2 i \text{Cos}[3 c + 4 d x] + 12 d x \text{Cos}[3 c + 4 d x] - i \text{Cos}[5 c + 4 d x] + 12 d x \text{Cos}[5 c + 4 d x] + \text{Cos}[c + 2 d x] (-7 i + 12 d x + 12 i \text{Log}[\text{Cos}[c + d x]]) + 12 i \text{Cos}[3 c + 2 d x] \text{Log}[\text{Cos}[c + d x]] + 12 i \text{Cos}[3 c + 4 d x] \text{Log}[\text{Cos}[c + d x]] + 12 i \text{Cos}[5 c + 4 d x] \text{Log}[\text{Cos}[c + d x]] + 11 \text{Sin}[c + 2 d x] + 12 i d x \text{Sin}[c + 2 d x] - 12 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[c + 2 d x] + 14 \text{Sin}[3 c + 2 d x] + 12 i d x \text{Sin}[3 c + 2 d x] - 12 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[3 c + 2 d x] - 4 \text{Sin}[3 c + 4 d x] + 12 i d x \text{Sin}[3 c + 4 d x] - 12 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[3 c + 4 d x] - \text{Sin}[5 c + 4 d x] + 12 i d x \text{Sin}[5 c + 4 d x] - 12 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[5 c + 4 d x])$$

- **Problem 172: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sec}[c + d x]^2}{(a + i a \text{Tan}[c + d x])^8} \, dx$$

Optimal (type 3, 27 leaves, 2 steps):

$$\frac{i}{7 a d (a + i a \text{Tan}[c + d x])^7}$$

Result (type 3, 100 leaves):

$$\left(i \text{Sec}[c + d x]^8 (35 + 56 \text{Cos}[2 (c + d x)] + 28 \text{Cos}[4 (c + d x)] + 8 \text{Cos}[6 (c + d x)] + 14 i \text{Sin}[2 (c + d x)] + 14 i \text{Sin}[4 (c + d x)] + 6 i \text{Sin}[6 (c + d x)])\right) \Big/ \left(896 a^8 d (-i + \text{Tan}[c + d x])^8\right)$$

Problem 176: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^{13}}{(a+i a \text{Tan}[c+d x])^8} \, dx$$

Optimal (type 3, 205 leaves, 7 steps):

$$\frac{1155 \text{ArcTanh}[\text{Sin}[c+d x]]}{8 a^8 d}+\frac{1155 \text{Sec}[c+d x] \text{Tan}[c+d x]}{8 a^8 d}+\frac{385 \text{Sec}[c+d x]^3 \text{Tan}[c+d x]}{4 a^8 d}+$$
$$\frac{2 i \text{Sec}[c+d x]^{11}}{3 a d (a+i a \text{Tan}[c+d x])^7}-\frac{22 i \text{Sec}[c+d x]^9}{3 a^3 d (a+i a \text{Tan}[c+d x])^5}-\frac{66 i \text{Sec}[c+d x]^7}{a^2 d \left(a^2+i a^2 \text{Tan}[c+d x]\right)^3}-\frac{154 i \text{Sec}[c+d x]^5}{d \left(a^8+i a^8 \text{Tan}[c+d x]\right)}$$

Result (type 3, 1704 leaves):

$$-\frac{1155 \text{Cos}[8 c] \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}[c+d x]^8 (\text{Cos}[d x]+i \text{Sin}[d x])^8}{8 d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{1155 \text{Cos}[8 c] \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}[c+d x]^8 (\text{Cos}[d x]+i \text{Sin}[d x])^8}{8 d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Cos}[3 d x] \text{Sec}[c+d x]^8 \left(\frac{32}{3} i \text{Cos}[5 c]-\frac{32}{3} \text{Sin}[5 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^8}{d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Cos}[d x] \text{Sec}[c+d x]^8 (-160 i \text{Cos}[7 c]+160 \text{Sin}[7 c]) (\text{Cos}[d x]+i \text{Sin}[d x])^8}{d (a+i a \text{Tan}[c+d x])^8}-$$
$$\frac{1155 i \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}[c+d x]^8 \text{Sin}[8 c] (\text{Cos}[d x]+i \text{Sin}[d x])^8}{8 d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{1155 i \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right] \text{Sec}[c+d x]^8 \text{Sin}[8 c] (\text{Cos}[d x]+i \text{Sin}[d x])^8}{8 d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Sec}[c] \text{Sec}[c+d x]^8 \left(-\frac{236}{3} i \text{Cos}[8 c]+\frac{236}{3} \text{Sin}[8 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^8}{d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Sec}[c+d x]^8 (-160 \text{Cos}[7 c]-160 i \text{Sin}[7 c]) (\text{Cos}[d x]+i \text{Sin}[d x])^8 \text{Sin}[d x]}{d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Sec}[c+d x]^8 \left(\frac{32}{3} \text{Cos}[5 c]+\frac{32}{3} i \text{Sin}[5 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^8 \text{Sin}[3 d x]}{d (a+i a \text{Tan}[c+d x])^8}+$$
$$\frac{\text{Sec}[c+d x]^8 \left(\frac{1}{16} \text{Cos}[8 c]+\frac{1}{16} i \text{Sin}[8 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^8}{d \left(\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right)^4 (a+i a \text{Tan}[c+d x])^8}-$$

$$\left(\left(\frac{1}{96}+\frac{i}{96}\right)\mathrm{Sec}[c+d\,x]^8\left(-407\,i\,\mathrm{Cos}\left[\frac{15\,c}{2}\right]+343\,\mathrm{Cos}\left[\frac{17\,c}{2}\right]+407\,\mathrm{Sin}\left[\frac{15\,c}{2}\right]+343\,i\,\mathrm{Sin}\left[\frac{17\,c}{2}\right]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\right)\Big/$$
$$\left(d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)+$$
$$\frac{\mathrm{Sec}[c+d\,x]^8\left(-\frac{1}{16}\mathrm{Cos}[8\,c]-\frac{1}{16}i\,\mathrm{Sin}[8\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8}{d\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^4(a+i\,a\,\mathrm{Tan}[c+d\,x])^8}+$$
$$\left(\left(\frac{1}{96}+\frac{i}{96}\right)\mathrm{Sec}[c+d\,x]^8\left(407\,\mathrm{Cos}\left[\frac{15\,c}{2}\right]-343\,i\,\mathrm{Cos}\left[\frac{17\,c}{2}\right]+407\,i\,\mathrm{Sin}\left[\frac{15\,c}{2}\right]+343\,\mathrm{Sin}\left[\frac{17\,c}{2}\right]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\right)\Big/$$
$$\left(d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)+$$
$$\left(236\,\mathrm{Sec}[c+d\,x]^8(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\left(\frac{1}{2}\mathrm{Cos}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}\mathrm{Cos}\left[8\,c+\frac{d\,x}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(3\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)+$$
$$\left(4\,\mathrm{Sec}[c+d\,x]^8(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\left(\frac{1}{2}\mathrm{Cos}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}\mathrm{Cos}\left[8\,c+\frac{d\,x}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(3\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)+$$
$$\left(4\,\mathrm{Sec}[c+d\,x]^8(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\left(-\frac{1}{2}\mathrm{Cos}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}\mathrm{Cos}\left[8\,c+\frac{d\,x}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(3\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^3(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)+$$
$$\left(236\,\mathrm{Sec}[c+d\,x]^8(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^8\left(-\frac{1}{2}\mathrm{Cos}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}\mathrm{Cos}\left[8\,c+\frac{d\,x}{2}\right]-\frac{1}{2}i\,\mathrm{Sin}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}i\,\mathrm{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(3\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)(a+i\,a\,\mathrm{Tan}[c+d\,x])^8\right)$$

- **Problem 177: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^{11}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^8}\,dx$$

Optimal (type 3, 183 leaves, 6 steps) :

$$-\frac{63\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,a^8\,d}-\frac{63\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,a^8\,d}+\frac{2\,i\,\text{Sec}[c+d\,x]^9}{5\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^7}-$$
$$\frac{6\,i\,\text{Sec}[c+d\,x]^7}{5\,a^3\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^5}+\frac{42\,i\,\text{Sec}[c+d\,x]^5}{5\,a^2\,d\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)^3}+\frac{42\,i\,\text{Sec}[c+d\,x]^3}{d\,\left(a^8+i\,a^8\,\text{Tan}[c+d\,x]\right)}$$

Result (type 3, 1244 leaves) :

$$\frac{63\,\text{Cos}[8\,c]\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}[c+d\,x]^8\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{2\,d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}-$$

$$\frac{63\,\text{Cos}[8\,c]\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}[c+d\,x]^8\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{2\,d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Cos}[5\,d\,x]\,\text{Sec}[c+d\,x]^8\,\left(\frac{8}{5}\,\text{i}\,\text{Cos}[3\,c]-\frac{8}{5}\,\text{Sin}[3\,c]\right)\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Cos}[3\,d\,x]\,\text{Sec}[c+d\,x]^8\,(-8\,\text{i}\,\text{Cos}[5\,c]+8\,\text{Sin}[5\,c])\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]^8\,(48\,\text{i}\,\text{Cos}[7\,c]-48\,\text{Sin}[7\,c])\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Sec}[c]\,\text{Sec}[c+d\,x]^8\,(8\,\text{i}\,\text{Cos}[8\,c]-8\,\text{Sin}[8\,c])\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{63\,\text{i}\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}[c+d\,x]^8\,\text{Sin}[8\,c]\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{2\,d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}-$$

$$\frac{63\,\text{i}\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]\,\text{Sec}[c+d\,x]^8\,\text{Sin}[8\,c]\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{2\,d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Sec}[c+d\,x]^8\,(48\,\text{Cos}[7\,c]+48\,\text{i}\,\text{Sin}[7\,c])\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8\,\text{Sin}[d\,x]}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Sec}[c+d\,x]^8\,(-8\,\text{Cos}[5\,c]-8\,\text{i}\,\text{Sin}[5\,c])\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8\,\text{Sin}[3\,d\,x]}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Sec}[c+d\,x]^8\,\left(\frac{8}{5}\,\text{Cos}[3\,c]+\frac{8}{5}\,\text{i}\,\text{Sin}[3\,c]\right)\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8\,\text{Sin}[5\,d\,x]}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\frac{\text{Sec}[c+d\,x]^8\,\left(\frac{1}{4}\,\text{Cos}[8\,c]+\frac{1}{4}\,\text{i}\,\text{Sin}[8\,c]\right)\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+\frac{\text{Sec}[c+d\,x]^8\,\left(-\frac{1}{4}\,\text{Cos}[8\,c]-\frac{1}{4}\,\text{i}\,\text{Sin}[8\,c]\right)\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8}{d\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)^2\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8}+$$

$$\left(8\,\text{Sec}[c+d\,x]^8\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8\,\left(\frac{1}{2}\,\text{Cos}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}\,\text{Cos}\left[8\,c+\frac{d\,x}{2}\right]+\frac{1}{2}\,\text{i}\,\text{Sin}\left[8\,c-\frac{d\,x}{2}\right]-\frac{1}{2}\,\text{i}\,\text{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(d\,\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8\right)+$$

$$\left(8\,\text{Sec}[c+d\,x]^8\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^8\,\left(-\frac{1}{2}\,\text{Cos}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}\,\text{Cos}\left[8\,c+\frac{d\,x}{2}\right]-\frac{1}{2}\,\text{i}\,\text{Sin}\left[8\,c-\frac{d\,x}{2}\right]+\frac{1}{2}\,\text{i}\,\text{Sin}\left[8\,c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\,\left(\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right)\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^8\right)$$

Problem 185: Result unnecessarily involves higher level functions.

$$\int (e \operatorname{Sec}[c+d x])^{7/2} (a+i a \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 4, 123 leaves, 5 steps):

$$-\frac{6 a e^4 \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{5 d \sqrt{\operatorname{Cos}[c+d x]} \sqrt{e \operatorname{Sec}[c+d x]}}+\frac{2 i a (e \operatorname{Sec}[c+d x])^{7/2}}{7 d}+\frac{6 a e^3 \sqrt{e \operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{5 d}+\frac{2 a e (e \operatorname{Sec}[c+d x])^{5/2} \operatorname{Sin}[c+d x]}{5 d}$$

Result (type 5, 134 leaves):

$$\frac{1}{35 d \left(1+e^{2 i (c+d x)}\right)^3}$$

$$2 i a e^3 e^{-i (c+d x)} \left(21+77 e^{2 i (c+d x)}+103 e^{4 i (c+d x)}+7 e^{6 i (c+d x)}-21 \left(1+e^{2 i (c+d x)}\right)^{7/2} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]\right) \sqrt{e \operatorname{Sec}[c+d x]}$$

Problem 187: Result unnecessarily involves higher level functions.

$$\int (e \operatorname{Sec}[c+d x])^{3/2} (a+i a \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 4, 90 leaves, 4 steps):

$$-\frac{2 a e^2 \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{d \sqrt{\operatorname{Cos}[c+d x]} \sqrt{e \operatorname{Sec}[c+d x]}}+\frac{2 i a (e \operatorname{Sec}[c+d x])^{3/2}}{3 d}+\frac{2 a e \sqrt{e \operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{d}$$

Result (type 5, 98 leaves):

$$\frac{1}{3 d \sqrt{e \operatorname{Sec}[c+d x]}} 2 a e^2 e^{-2 i (c+d x)} \left(-4+3 \sqrt{1+e^{2 i (c+d x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]-i \operatorname{Tan}[c+d x]\right) (-i+\operatorname{Tan}[c+d x])$$

Problem 189: Result unnecessarily involves higher level functions.

$$\int \frac{a+i a \operatorname{Tan}[c+d x]}{\sqrt{e \operatorname{Sec}[c+d x]}} \, dx$$

Optimal (type 4, 60 leaves, 3 steps):

$$-\frac{2 i a}{d \sqrt{e \operatorname{Sec}[c+d x]}}+\frac{2 a \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{d \sqrt{\operatorname{Cos}[c+d x]} \sqrt{e \operatorname{Sec}[c+d x]}}$$

Result (type 5, 90 leaves):

$$-\frac{4 i a \left(1+e^{2 i (c+d x)}-\sqrt{1+e^{2 i (c+d x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]\right)}{d \left(1+e^{2 i (c+d x)}\right) \sqrt{e \operatorname{Sec}[c+d x]}}$$

Problem 191: Result unnecessarily involves higher level functions.

$$\int \frac{a + i a \operatorname{Tan}[c + d x]}{(e \operatorname{Sec}[c + d x])^{5/2}} \, dx$$

Optimal (type 4, 96 leaves, 4 steps):

$$-\frac{2 i a}{5 d (e \operatorname{Sec}[c + d x])^{5/2}} + \frac{6 a \operatorname{EllipticE}\left[\frac{1}{2} (c + d x), 2\right]}{5 d e^2 \sqrt{\operatorname{Cos}[c + d x]} \sqrt{e \operatorname{Sec}[c + d x]}} + \frac{2 a \operatorname{Sin}[c + d x]}{5 d e (e \operatorname{Sec}[c + d x])^{3/2}}$$

Result (type 5, 108 leaves):

$$-\frac{i a \left(7 + 8 e^{2 i (c+d x)} + e^{4 i (c+d x)} - 12 \sqrt{1 + e^{2 i (c+d x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]\right)}{5 d e^2 \left(1 + e^{2 i (c+d x)}\right) \sqrt{e \operatorname{Sec}[c + d x]}}$$

Problem 193: Result unnecessarily involves higher level functions.

$$\int (e \operatorname{Sec}[c + d x])^{3/2} (a + i a \operatorname{Tan}[c + d x])^2 \, dx$$

Optimal (type 4, 138 leaves, 5 steps):

$$-\frac{14 a^2 e^2 \operatorname{EllipticE}\left[\frac{1}{2} (c + d x), 2\right]}{5 d \sqrt{\operatorname{Cos}[c + d x]} \sqrt{e \operatorname{Sec}[c + d x]}} + \frac{14 i a^2 (e \operatorname{Sec}[c + d x])^{3/2}}{15 d} + \frac{14 a^2 e \sqrt{e \operatorname{Sec}[c + d x]} \operatorname{Sin}[c + d x]}{5 d} + \frac{2 i (e \operatorname{Sec}[c + d x])^{3/2} \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)}{5 d}$$

Result (type 5, 121 leaves):

$$-\frac{1}{15 d \left(1 + e^{2 i (c+d x)}\right)^2} 2 i a^2 e\, e^{-i (c+d x)} \left(-21 - 56 e^{2 i (c+d x)} - 47 e^{4 i (c+d x)} + 21 \left(1 + e^{2 i (c+d x)}\right)^{5/2} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]\right) \sqrt{e \operatorname{Sec}[c + d x]}$$

Problem 195: Result unnecessarily involves higher level functions.

$$\int \frac{(a + i a \operatorname{Tan}[c + d x])^2}{\sqrt{e \operatorname{Sec}[c + d x]}} \, dx$$

Optimal (type 4, 107 leaves, 4 steps):

$$\frac{6 a^2 \operatorname{EllipticE}\left[\frac{1}{2} (c + d x), 2\right]}{d \sqrt{\operatorname{Cos}[c + d x]} \sqrt{e \operatorname{Sec}[c + d x]}} - \frac{6 a^2 \sqrt{e \operatorname{Sec}[c + d x]} \operatorname{Sin}[c + d x]}{d e} - \frac{4 i \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)}{d \sqrt{e \operatorname{Sec}[c + d x]}}$$

Result (type 5, 94 leaves):

$$-\frac{4\,i\,a^2\left(3+2\,e^{2\,i\,(c+d\,x)}-3\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)}{d\,\left(1+e^{2\,i\,(c+d\,x)}\right)\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$

- **Problem 197: Result unnecessarily involves higher level functions.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^2}{(e\,\text{Sec}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 4, 85 leaves, 3 steps):

$$\frac{2\,a^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}-\frac{4\,i\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)}{5\,d\,(e\,\text{Sec}[c+d\,x])^{5/2}}$$

Result (type 5, 110 leaves):

$$-\frac{2\,i\,a^2\left(2+3\,e^{2\,i\,(c+d\,x)}+e^{4\,i\,(c+d\,x)}-2\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)}{5\,d\,e^2\,\left(1+e^{2\,i\,(c+d\,x)}\right)\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$

- **Problem 199: Result unnecessarily involves higher level functions.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^2}{(e\,\text{Sec}[c+d\,x])^{9/2}}\,dx$$

Optimal (type 4, 116 leaves, 4 steps):

$$\frac{2\,a^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{3\,d\,e^4\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{2\,a^2\,\text{Sin}[c+d\,x]}{9\,d\,e^3\,(e\,\text{Sec}[c+d\,x])^{3/2}}-\frac{4\,i\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)}{9\,d\,(e\,\text{Sec}[c+d\,x])^{9/2}}$$

Result (type 5, 123 leaves):

$$-\left(i\,a^2\left(15+19\,e^{2\,i\,(c+d\,x)}+5\,e^{4\,i\,(c+d\,x)}+e^{6\,i\,(c+d\,x)}-24\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\right)\Big/\left(18\,d\,e^4\,\left(1+e^{2\,i\,(c+d\,x)}\right)\,\sqrt{e\,\text{Sec}[c+d\,x]}\right)$$

- **Problem 201: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(e\,\text{Sec}[c+d\,x])^{7/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 4, 202 leaves, 7 steps):

$$-\frac{2\,a^3\,e^4\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{10\,i\,a^3\,(e\,\text{Sec}[c+d\,x])^{7/2}}{21\,d}+\frac{2\,a^3\,e^3\,\sqrt{e\,\text{Sec}[c+d\,x]}\;\text{Sin}[c+d\,x]}{d}+$$
$$\frac{2\,a^3\,e\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\text{Sin}[c+d\,x]}{3\,d}+\frac{2\,i\,a\,(e\,\text{Sec}[c+d\,x])^{7/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{11\,d}+\frac{10\,i\,(e\,\text{Sec}[c+d\,x])^{7/2}\,\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{33\,d}$$

Result (type 5, 425 leaves) :

$$-\left(2\,i\,\sqrt{2}\,e^{-i\,(4\,c+d\,x)}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\left(1+e^{2\,i\,(c+d\,x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\right.$$
$$\left.(e\,\text{Sec}[c+d\,x])^{7/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)\Big/\left(d\,\left(-1+e^{2\,i\,c}\right)\text{Sec}[c+d\,x]^{13/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right)+\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}$$
$$\text{Cos}[c+d\,x]^6\,(e\,\text{Sec}[c+d\,x])^{7/2}\left(\text{Sec}[c+d\,x]^5\left(-\frac{2}{11}\,i\,\text{Cos}[3\,c]-\frac{2}{11}\,\text{Sin}[3\,c]\right)+\text{Cos}[d\,x]\,\text{Csc}[c]\,(2\,\text{Cos}[3\,c]-2\,i\,\text{Sin}[3\,c])+\right.$$
$$\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\,(12\,\text{Cos}[c]+7\,i\,\text{Sin}[c])\left(\frac{2}{21}\,i\,\text{Cos}[3\,c]+\frac{2}{21}\,\text{Sin}[3\,c]\right)+\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\left(\frac{2}{3}\,\text{Cos}[3\,c]-\frac{2}{3}\,i\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]+$$
$$\left.\text{Sec}[c]\,\text{Sec}[c+d\,x]^4\left(-\frac{2}{3}\,\text{Cos}[3\,c]+\frac{2}{3}\,i\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]+\text{Sec}[c+d\,x]\left(\frac{2}{3}\,\text{Cos}[3\,c]-\frac{2}{3}\,i\,\text{Sin}[3\,c]\right)\text{Tan}[c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^3$$

- **Problem 203: Result unnecessarily involves higher level functions.**

$$\int (e\,\text{Sec}[c+d\,x])^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 4, 175 leaves, 6 steps) :

$$-\frac{22\,a^3\,e^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{22\,i\,a^3\,(e\,\text{Sec}[c+d\,x])^{3/2}}{15\,d}+\frac{22\,a^3\,e\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{5\,d}+$$
$$\frac{2\,i\,a\,(e\,\text{Sec}[c+d\,x])^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{7\,d}+\frac{22\,i\,(e\,\text{Sec}[c+d\,x])^{3/2}\,\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{35\,d}$$

Result (type 5, 125 leaves) :

$$\frac{1}{210\,d}a^3\,(e\,\text{Sec}[c+d\,x])^{3/2}\left(556+868\,\text{Cos}[2\,(c+d\,x)]-231\,e^{-2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{5/2}\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$\left.203\,i\,\text{Sec}[c+d\,x]\,\text{Sin}[3\,(c+d\,x)]+143\,i\,\text{Tan}[c+d\,x]\right)\,(i+\text{Tan}[c+d\,x])$$

- **Problem 205: Result unnecessarily involves higher level functions.**

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^3}{\sqrt{e\,\text{Sec}[c+d\,x]}}\,dx$$

Optimal (type 4, 124 leaves, 5 steps) :

$$-\frac{26\,i\,a^3}{3\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{14\,a^3\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}-\frac{6\,a^3\,\text{Tan}[c+d\,x]}{d\,\sqrt{e\,\text{Sec}[c+d\,x]}}-\frac{2\,i\,a^3\,\text{Tan}[c+d\,x]^2}{3\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$

Result (type 5, 109 leaves) :

$$\frac{1}{3\, d\, \sqrt{e\, \mathrm{Sec}[c+d\, x]}}\, i\, a^3\, \mathrm{Sec}[c+d\, x]^2 \left(-35-33\, \mathrm{Cos}[2\,(c+d\, x)]+21\, e^{-2\, i\,(c+d\, x)}\left(1+e^{2\, i\,(c+d\, x)}\right)^{3/2} \mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\, i\,(c+d\, x)}\right]+9\, i\, \mathrm{Sin}[2\,(c+d\, x)]\right)$$

- **Problem 207: Result unnecessarily involves higher level functions.**

$$\int \frac{(a+i\, a\, \mathrm{Tan}[c+d\, x])^3}{(e\, \mathrm{Sec}[c+d\, x])^{5/2}}\, dx$$

Optimal (type 4, 111 leaves, 4 steps) :

$$\frac{6\, i\, a^3}{5\, d\, e^2 \sqrt{e\, \mathrm{Sec}[c+d\, x]}}-\frac{6\, a^3\, \mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\, x),2\right]}{5\, d\, e^2 \sqrt{\mathrm{Cos}[c+d\, x]}\, \sqrt{e\, \mathrm{Sec}[c+d\, x]}}-\frac{4\, i\, a\,(a+i\, a\, \mathrm{Tan}[c+d\, x])^2}{5\, d\,(e\, \mathrm{Sec}[c+d\, x])^{5/2}}$$

Result (type 5, 110 leaves) :

$$-\frac{4\, i\, a^3\left(-3-2\, e^{2\, i\,(c+d\, x)}+e^{4\, i\,(c+d\, x)}+3\sqrt{1+e^{2\, i\,(c+d\, x)}}\, \mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\, i\,(c+d\, x)}\right]\right)}{5\, d\, e^2\left(1+e^{2\, i\,(c+d\, x)}\right)\sqrt{e\, \mathrm{Sec}[c+d\, x]}}$$

- **Problem 209: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+i\, a\, \mathrm{Tan}[c+d\, x])^3}{(e\, \mathrm{Sec}[c+d\, x])^{9/2}}\, dx$$

Optimal (type 4, 124 leaves, 4 steps) :

$$\frac{2\, a^3\, \mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\, x),2\right]}{15\, d\, e^4 \sqrt{\mathrm{Cos}[c+d\, x]}\, \sqrt{e\, \mathrm{Sec}[c+d\, x]}}-\frac{2\, i\,(a+i\, a\, \mathrm{Tan}[c+d\, x])^3}{9\, d\,(e\, \mathrm{Sec}[c+d\, x])^{9/2}}-\frac{4\, i\left(a^3+i\, a^3\, \mathrm{Tan}[c+d\, x]\right)}{15\, d\, e^2\,(e\, \mathrm{Sec}[c+d\, x])^{5/2}}$$

Result (type 5, 371 leaves) :

$$\left(2\,i\,\sqrt{2}\,e^{-i\,(4\,c+d\,x)}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\left(1+e^{2\,i\,(c+d\,x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\right.$$
$$\left.\text{Sec}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)\Big/\left(15\,d\,\left(-1+e^{2\,i\,c}\right)\,(e\,\text{Sec}[c+d\,x])^{9/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right)+$$
$$\left(\text{Sec}[c+d\,x]^2\,\left(-\frac{8}{45}\,i\,\text{Cos}[3\,d\,x]+\text{Cos}[d\,x]\,\text{Csc}[c]\,(12\,\text{Cos}[c]+11\,i\,\text{Sin}[c])\,\left(-\frac{1}{90}\,\text{Cos}[2\,c]+\frac{1}{90}\,i\,\text{Sin}[2\,c]\right)+\right.\right.$$
$$\text{Cos}[5\,d\,x]\,\left(-\frac{1}{18}\,i\,\text{Cos}[2\,c]+\frac{1}{18}\,\text{Sin}[2\,c]\right)+\left(\frac{23}{90}\,\text{Cos}[2\,c]-\frac{23}{90}\,i\,\text{Sin}[2\,c]\right)\,\text{Sin}[d\,x]+\frac{8}{45}\,\text{Sin}[3\,d\,x]+$$
$$\left.\left.\left(\frac{1}{18}\,\text{Cos}[2\,c]+\frac{1}{18}\,i\,\text{Sin}[2\,c]\right)\,\text{Sin}[5\,d\,x]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)\Big/\left(d\,(e\,\text{Sec}[c+d\,x])^{9/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right)$$

- **Problem 211: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^3}{(e\,\text{Sec}[c+d\,x])^{13/2}}\,dx$$

Optimal (type 4, 155 leaves, 5 steps):

$$\frac{14\,a^3\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{39\,d\,e^6\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{14\,a^3\,\text{Sin}[c+d\,x]}{117\,d\,e^5\,(e\,\text{Sec}[c+d\,x])^{3/2}}-\frac{2\,i\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{13\,d\,(e\,\text{Sec}[c+d\,x])^{13/2}}-\frac{28\,i\,\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{117\,d\,e^2\,(e\,\text{Sec}[c+d\,x])^{9/2}}$$

Result (type 5, 437 leaves):

$$\left(14\,i\,\sqrt{2}\,e^{-i\,(4\,c+d\,x)}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\left(1+e^{2\,i\,(c+d\,x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\right.$$
$$\left.\text{Sec}[c+d\,x]^{7/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)\Big/\left(39\,d\,\left(-1+e^{2\,i\,c}\right)\,(e\,\text{Sec}[c+d\,x])^{13/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right)+$$
$$\frac{1}{d\,(e\,\text{Sec}[c+d\,x])^{13/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}\,\text{Sec}[c+d\,x]^4\,\left(-\frac{31}{234}\,i\,\text{Cos}[3\,d\,x]+\text{Cos}[5\,d\,x]\,\left(-\frac{25}{468}\,i\,\text{Cos}[2\,c]+\frac{25}{468}\,\text{Sin}[2\,c]\right)+\right.$$
$$\text{Cos}[d\,x]\,\text{Csc}[c]\,(253+419\,\text{Cos}[2\,c]+185\,i\,\text{Sin}[2\,c])\,\left(-\frac{\text{Cos}[3\,c]}{1872}+\frac{i\,\text{Sin}[3\,c]}{1872}\right)+\text{Cos}[7\,d\,x]\,\left(-\frac{1}{104}\,i\,\text{Cos}[4\,c]+\frac{1}{104}\,\text{Sin}[4\,c]\right)+$$
$$(419\,\text{Cos}[c]+185\,i\,\text{Sin}[c])\,\left(\frac{1}{936}\,\text{Cos}[3\,c]-\frac{1}{936}\,i\,\text{Sin}[3\,c]\right)\,\text{Sin}[d\,x]+\frac{31}{234}\,\text{Sin}[3\,d\,x]+$$
$$\left.\left(\frac{25}{468}\,\text{Cos}[2\,c]+\frac{25}{468}\,i\,\text{Sin}[2\,c]\right)\,\text{Sin}[5\,d\,x]+\left(\frac{1}{104}\,\text{Cos}[4\,c]+\frac{1}{104}\,i\,\text{Sin}[4\,c]\right)\,\text{Sin}[7\,d\,x]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^3$$

Problem 213: Result unnecessarily involves higher level functions.

$$\int (e \operatorname{Sec}[c+d x])^{3/2} (a+i a \operatorname{Tan}[c+d x])^4 \, dx$$

Optimal (type 4, 215 leaves, 7 steps):

$$-\frac{22 a^4 e^2 \operatorname{EllipticE}\left[\frac{1}{2}(c+d x), 2\right]}{3 d \sqrt{\operatorname{Cos}[c+d x]} \sqrt{e \operatorname{Sec}[c+d x]}}+\frac{22 i a^4 (e \operatorname{Sec}[c+d x])^{3/2}}{9 d}+\frac{22 a^4 e \sqrt{e \operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{3 d}+$$
$$\frac{2 i a (e \operatorname{Sec}[c+d x])^{3/2} (a+i a \operatorname{Tan}[c+d x])^3}{9 d}+\frac{10 i (e \operatorname{Sec}[c+d x])^{3/2} \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)^2}{21 d}+\frac{22 i (e \operatorname{Sec}[c+d x])^{3/2} \left(a^4+i a^4 \operatorname{Tan}[c+d x]\right)}{21 d}$$

Result (type 5, 414 leaves):

$$-\left(22 i \sqrt{2}\, e^{-i (5 c+d x)} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \left(1+e^{2 i (c+d x)}+\left(-1+e^{2 i c}\right) \sqrt{1+e^{2 i (c+d x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c+d x)}\right]\right)\right.$$
$$\left.(e \operatorname{Sec}[c+d x])^{3/2} (a+i a \operatorname{Tan}[c+d x])^4\right) \Big/ \left(3 d \left(-1+e^{2 i c}\right) \operatorname{Sec}[c+d x]^{11/2} (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^4\right)+$$
$$\frac{1}{d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^4} \operatorname{Cos}[c+d x]^5 (e \operatorname{Sec}[c+d x])^{3/2} \left(\operatorname{Sec}[c] \operatorname{Sec}[c+d x]^3 (36 \operatorname{Cos}[c]+7 i \operatorname{Sin}[c]) \left(-\frac{2}{63} i \operatorname{Cos}[4 c]-\frac{2}{63} \operatorname{Sin}[4 c]\right)+\right.$$
$$\operatorname{Cos}[d x] \operatorname{Csc}[c] \left(\frac{22}{3} \operatorname{Cos}[4 c]-\frac{22}{3} i \operatorname{Sin}[4 c]\right)+\operatorname{Sec}[c] \operatorname{Sec}[c+d x] (24 \operatorname{Cos}[c]+13 i \operatorname{Sin}[c]) \left(\frac{2}{9} i \operatorname{Cos}[4 c]+\frac{2}{9} \operatorname{Sin}[4 c]\right)+\operatorname{Sec}[c]$$
$$\left.\operatorname{Sec}[c+d x]^4 \left(\frac{2}{9} \operatorname{Cos}[4 c]-\frac{2}{9} i \operatorname{Sin}[4 c]\right) \operatorname{Sin}[d x]+\operatorname{Sec}[c] \operatorname{Sec}[c+d x]^2 \left(-\frac{26}{9} \operatorname{Cos}[4 c]+\frac{26}{9} i \operatorname{Sin}[4 c]\right) \operatorname{Sin}[d x]\right) (a+i a \operatorname{Tan}[c+d x])^4$$

Problem 215: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^4}{\sqrt{e \operatorname{Sec}[c+d x]}} \, dx$$

Optimal (type 4, 178 leaves, 6 steps):

$$\frac{154 a^4 \operatorname{EllipticE}\left[\frac{1}{2}(c+d x), 2\right]}{5 d \sqrt{\operatorname{Cos}[c+d x]} \sqrt{e \operatorname{Sec}[c+d x]}}-\frac{154 i a^4 (e \operatorname{Sec}[c+d x])^{3/2}}{15 d e^2}-$$
$$\frac{154 a^4 \sqrt{e \operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{5 d e}-\frac{4 i a (a+i a \operatorname{Tan}[c+d x])^3}{d \sqrt{e \operatorname{Sec}[c+d x]}}-\frac{22 i (e \operatorname{Sec}[c+d x])^{3/2} \left(a^4+i a^4 \operatorname{Tan}[c+d x]\right)}{5 d e^2}$$

Result (type 5, 370 leaves):

$$\left(154\,i\,\sqrt{2}\,e^{-i\,(5c+dx)}\sqrt{\frac{e^{i\,(c+dx)}}{1+e^{2i\,(c+dx)}}}\left(1+e^{2i\,(c+dx)}+\left(-1+e^{2ic}\right)\sqrt{1+e^{2i\,(c+dx)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2i\,(c+dx)}\right]\right)\right.$$

$$\left.(a+i\,a\,\text{Tan}[c+dx])^4\right)\Big/\left(5\,d\left(-1+e^{2ic}\right)\text{Sec}[c+dx]^{7/2}\sqrt{e\,\text{Sec}[c+dx]}\;(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\right)+$$

$$\frac{1}{d\sqrt{e\,\text{Sec}[c+dx]}\;(\text{Cos}[dx]+i\,\text{Sin}[dx])^4}\text{Cos}[c+dx]^3\left(\text{Cos}[dx]\,\text{Csc}[c]\,(77\,\text{Cos}[c]-37\,i\,\text{Sin}[c])\left(-\frac{2}{5}\text{Cos}[3c]+\frac{2}{5}i\,\text{Sin}[3c]\right)+\right.$$

$$\text{Sec}[c]\,\text{Sec}[c+dx]\,(20\,\text{Cos}[c]+3\,i\,\text{Sin}[c])\left(-\frac{2}{15}i\,\text{Cos}[4c]-\frac{2}{15}\text{Sin}[4c]\right)+(16\,\text{Cos}[3c]-16\,i\,\text{Sin}[3c])\,\text{Sin}[dx]+$$

$$\left.\text{Sec}[c]\,\text{Sec}[c+dx]^2\left(\frac{2}{5}\text{Cos}[4c]-\frac{2}{5}i\,\text{Sin}[4c]\right)\text{Sin}[dx]\right)(a+i\,a\,\text{Tan}[c+dx])^4$$

- **Problem 217: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+dx])^4}{(e\,\text{Sec}[c+dx])^{5/2}}\,dx$$

Optimal (type 4, 156 leaves, 5 steps):

$$-\frac{42\,a^4\,\text{EllipticE}\left[\frac{1}{2}(c+dx),2\right]}{5\,d\,e^2\sqrt{\text{Cos}[c+dx]}\sqrt{e\,\text{Sec}[c+dx]}}+\frac{42\,a^4\sqrt{e\,\text{Sec}[c+dx]}\;\text{Sin}[c+dx]}{5\,d\,e^3}-\frac{4\,i\,a\,(a+i\,a\,\text{Tan}[c+dx])^3}{5\,d\,(e\,\text{Sec}[c+dx])^{5/2}}+\frac{28\,i\left(a^4+i\,a^4\,\text{Tan}[c+dx]\right)}{5\,d\,e^2\sqrt{e\,\text{Sec}[c+dx]}}$$

Result (type 5, 341 leaves):

$$-\left(42\,i\,\sqrt{2}\,e^{-i\,(5c+dx)}\sqrt{\frac{e^{i\,(c+dx)}}{1+e^{2i\,(c+dx)}}}\left(1+e^{2i\,(c+dx)}+\left(-1+e^{2ic}\right)\sqrt{1+e^{2i\,(c+dx)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2i\,(c+dx)}\right]\right)\right.$$

$$\left.(a+i\,a\,\text{Tan}[c+dx])^4\right)\Big/\left(5\,d\left(-1+e^{2ic}\right)\text{Sec}[c+dx]^{3/2}\,(e\,\text{Sec}[c+dx])^{5/2}\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\right)+$$

$$\left(\text{Cos}[c+dx]\left(\text{Cos}[3dx]\left(-\frac{4}{5}i\,\text{Cos}[c]-\frac{4\,\text{Sin}[c]}{5}\right)+\text{Cos}[dx]\,\text{Csc}[c]\,(3\,\text{Cos}[c]-i\,\text{Sin}[c])\left(\frac{14}{5}\text{Cos}[3c]-\frac{14}{5}i\,\text{Sin}[3c]\right)+\right.\right.$$

$$\left.\left(-\frac{28}{5}\text{Cos}[3c]+\frac{28}{5}i\,\text{Sin}[3c]\right)\text{Sin}[dx]+\left(\frac{4\,\text{Cos}[c]}{5}-\frac{4}{5}i\,\text{Sin}[c]\right)\text{Sin}[3dx]\right)$$

$$\left.(a+i\,a\,\text{Tan}[c+dx])^4\right)\Big/\left(d\,(e\,\text{Sec}[c+dx])^{5/2}\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\right)$$

- **Problem 219: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a + i\, a \operatorname{Tan}[c + d x])^4}{(e \operatorname{Sec}[c + d x])^{9/2}} \, dx$$

Optimal (type 4, 125 leaves, 4 steps):

$$-\frac{2 a^4 \operatorname{EllipticE}\left[\frac{1}{2} (c + d x), 2\right]}{15 d e^4 \sqrt{\operatorname{Cos}[c + d x]} \sqrt{e \operatorname{Sec}[c + d x]}} - \frac{4 i a (a + i a \operatorname{Tan}[c + d x])^3}{9 d (e \operatorname{Sec}[c + d x])^{9/2}} + \frac{4 i \left(a^4 + i a^4 \operatorname{Tan}[c + d x]\right)}{15 d e^2 (e \operatorname{Sec}[c + d x])^{5/2}}$$

Result (type 5, 383 leaves):

$$-\left(2 i \sqrt{2}\, e^{-i (5 c + d x)} \sqrt{\frac{e^{i (c + d x)}}{1 + e^{2 i (c + d x)}}} \left(1 + e^{2 i (c + d x)} + \left(-1 + e^{2 i c}\right) \sqrt{1 + e^{2 i (c + d x)}} \operatorname{Hypergeometric2F1}\left[-\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, -e^{2 i (c + d x)}\right]\right) \sqrt{\operatorname{Sec}[c + d x]} (a + i a \operatorname{Tan}[c + d x])^4\right) \Big/ \left(15 d \left(-1 + e^{2 i c}\right) (e \operatorname{Sec}[c + d x])^{9/2} (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x])^4\right) +$$

$$\frac{1}{d (e \operatorname{Sec}[c + d x])^{9/2} (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x])^4} \operatorname{Sec}[c + d x] \left(\operatorname{Cos}[3 d x] \left(-\frac{7}{45} i \operatorname{Cos}[c] - \frac{7 \operatorname{Sin}[c]}{45}\right) + \operatorname{Cos}[5 d x] \left(-\frac{1}{9} i \operatorname{Cos}[c] + \frac{\operatorname{Sin}[c]}{9}\right) + \operatorname{Cos}[d x] \operatorname{Csc}[c] (3 \operatorname{Cos}[c] - i \operatorname{Sin}[c]) \left(\frac{2}{45} \operatorname{Cos}[3 c] - \frac{2}{45} i \operatorname{Sin}[3 c]\right) + \left(-\frac{4}{45} \operatorname{Cos}[3 c] + \frac{4}{45} i \operatorname{Sin}[3 c]\right) \operatorname{Sin}[d x] + \left(\frac{7 \operatorname{Cos}[c]}{45} - \frac{7}{45} i \operatorname{Sin}[c]\right) \operatorname{Sin}[3 d x] + \left(\frac{\operatorname{Cos}[c]}{9} + \frac{1}{9} i \operatorname{Sin}[c]\right) \operatorname{Sin}[5 d x]\right) (a + i a \operatorname{Tan}[c + d x])^4$$

- **Problem 221: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a + i\, a \operatorname{Tan}[c + d x])^4}{(e \operatorname{Sec}[c + d x])^{13/2}} \, dx$$

Optimal (type 4, 156 leaves, 5 steps):

$$\frac{2 a^4 \operatorname{EllipticE}\left[\frac{1}{2} (c + d x), 2\right]}{39 d e^6 \sqrt{\operatorname{Cos}[c + d x]} \sqrt{e \operatorname{Sec}[c + d x]}} + \frac{2 a^4 \operatorname{Sin}[c + d x]}{117 d e^5 (e \operatorname{Sec}[c + d x])^{3/2}} - \frac{4 i a (a + i a \operatorname{Tan}[c + d x])^3}{13 d (e \operatorname{Sec}[c + d x])^{13/2}} - \frac{4 i \left(a^4 + i a^4 \operatorname{Tan}[c + d x]\right)}{117 d e^2 (e \operatorname{Sec}[c + d x])^{9/2}}$$

Result (type 5, 435 leaves):

$$\left(2\,i\,\sqrt{2}\,e^{-i\,(5c+d x)}\sqrt{\frac{e^{i\,(c+d x)}}{1+e^{2\,i\,(c+d x)}}}\left(1+e^{2\,i\,(c+d x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d x)}}\;\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d x)}\right]\right)\right.$$

$$\left.\text{Sec}[c+d x]^{5/2}\,(a+i\,a\,\text{Tan}[c+d x])^4\right)\Big/\left(39\,d\left(-1+e^{2\,i\,c}\right)(e\,\text{Sec}[c+d x])^{13/2}\left(\text{Cos}[d x]+i\,\text{Sin}[d x]\right)^4\right)+$$

$$\frac{1}{d\,(e\,\text{Sec}[c+d x])^{13/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^4}\,\text{Sec}[c+d x]^3\left(\text{Cos}[3 d x]\left(-\frac{59}{468}\,i\,\text{Cos}[c]-\frac{59\,\text{Sin}[c]}{468}\right)+\right.$$

$$\text{Cos}[5 d x]\left(-\frac{37}{468}\,i\,\text{Cos}[c]+\frac{37\,\text{Sin}[c]}{468}\right)+\text{Cos}[d x]\,\text{Csc}[c]\,(24\,\text{Cos}[c]+31\,i\,\text{Sin}[c])\left(-\frac{1}{468}\,\text{Cos}[3 c]+\frac{1}{468}\,i\,\text{Sin}[3 c]\right)+$$

$$\text{Cos}[7 d x]\left(-\frac{1}{52}\,i\,\text{Cos}[3 c]+\frac{1}{52}\,\text{Sin}[3 c]\right)+\left(\frac{55}{468}\,\text{Cos}[3 c]-\frac{55}{468}\,i\,\text{Sin}[3 c]\right)\text{Sin}[d x]+\left(\frac{59\,\text{Cos}[c]}{468}-\frac{59}{468}\,i\,\text{Sin}[c]\right)\text{Sin}[3 d x]+$$

$$\left.\left(\frac{37\,\text{Cos}[c]}{468}+\frac{37}{468}\,i\,\text{Sin}[c]\right)\text{Sin}[5 d x]+\left(\frac{1}{52}\,\text{Cos}[3 c]+\frac{1}{52}\,i\,\text{Sin}[3 c]\right)\text{Sin}[7 d x]\right)(a+i\,a\,\text{Tan}[c+d x])^4$$

- **Problem 223: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\text{Sec}[c+d x])^{11/2}}{a+i\,a\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 4, 136 leaves, 5 steps):

$$-\frac{6\,e^6\,\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{5\,a\,d\,\sqrt{\text{Cos}[c+d x]}\,\sqrt{e\,\text{Sec}[c+d x]}}-\frac{2\,i\,e^2\,(e\,\text{Sec}[c+d x])^{7/2}}{7\,a\,d}+\frac{6\,e^5\,\sqrt{e\,\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{5\,a\,d}+\frac{2\,e^3\,(e\,\text{Sec}[c+d x])^{5/2}\,\text{Sin}[c+d x]}{5\,a\,d}$$

Result (type 5, 128 leaves):

$$-\frac{1}{70\,a\,d}e^4\,(e\,\text{Sec}[c+d x])^{3/2}\left(-36-28\,\text{Cos}[2\,(c+d x)]+21\,e^{-2\,i\,(c+d x)}\left(1+e^{2\,i\,(c+d x)}\right)^{5/2}\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d x)}\right]+\right.$$

$$\left.7\,i\,\text{Sec}[c+d x]\,\text{Sin}[3\,(c+d x)]+27\,i\,\text{Tan}[c+d x]\right)(i+\text{Tan}[c+d x])$$

- **Problem 225: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\text{Sec}[c+d x])^{7/2}}{a+i\,a\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 4, 101 leaves, 4 steps):

$$-\frac{2\,e^4\,\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{a\,d\,\sqrt{\text{Cos}[c+d x]}\,\sqrt{e\,\text{Sec}[c+d x]}}-\frac{2\,i\,e^2\,(e\,\text{Sec}[c+d x])^{3/2}}{3\,a\,d}+\frac{2\,e^3\,\sqrt{e\,\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{a\,d}$$

Result (type 5, 101 leaves):

$$\frac{1}{3\,a\,d}2\,e^3\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(\text{Cos}[c]-i\,\text{Sin}[c]\right)\,\left(\text{Cos}[d\,x]-i\,\text{Sin}[d\,x]\right)$$
$$\left(2\,i-3\,i\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]+\text{Tan}[c+d\,x]\right)$$

- **Problem 227: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\text{Sec}[c+d\,x])^{3/2}}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 4, 70 leaves, 3 steps):

$$\frac{2\,i\,e^2}{a\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{2\,e^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{a\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$

Result (type 5, 74 leaves):

$$\frac{2\,i\,e\,e^{-i\,(c+d\,x)}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\,\sqrt{e\,\text{Sec}[c+d\,x]}}{a\,d}$$

- **Problem 229: Result unnecessarily involves higher level functions.**

$$\int\frac{1}{\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(a+i\,a\,\text{Tan}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 80 leaves, 3 steps):

$$\frac{6\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,a\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{2\,i}{5\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(a+i\,a\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 98 leaves):

$$-\frac{1}{5\,a\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$
$$\left(2+2\,\text{Cos}[2\,(c+d\,x)]-6\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]+3\,i\,\text{Sin}[2\,(c+d\,x)]\right)\,\left(i+\text{Tan}[c+d\,x]\right)$$

- **Problem 231: Result unnecessarily involves higher level functions.**

$$\int\frac{1}{(e\,\text{Sec}[c+d\,x])^{5/2}\,\left(a+i\,a\,\text{Tan}[c+d\,x]\right)}\,dx$$

Optimal (type 4, 114 leaves, 4 steps):

$$\frac{14\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{15\,a\,d\,e^2\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{14\,\text{Sin}[c+d\,x]}{45\,a\,d\,e\,(e\,\text{Sec}[c+d\,x])^{3/2}}+\frac{2\,i}{9\,d\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\left(a+i\,a\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 123 leaves):

$$-\left(\left(62+64\,\mathrm{Cos}[2\,(c+d\,x)]+2\,\mathrm{Cos}[4\,(c+d\,x)]-168\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]+98\,i\,\mathrm{Sin}[2\,(c+d\,x)]+7\,i\,\mathrm{Sin}[4\,(c+d\,x)]\right)(i+\mathrm{Tan}[c+d\,x])\right)\Big/\left(180\,a\,d\,e^2\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\right)$$

- **Problem 233: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\mathrm{Sec}[c+d\,x])^{15/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 183 leaves, 6 steps) :

$$-\frac{22\,e^8\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{15\,a^2\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\frac{22\,e^7\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{15\,a^2\,d}+\frac{22\,e^5\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}\,\mathrm{Sin}[c+d\,x]}{45\,a^2\,d}+\frac{22\,e^3\,(e\,\mathrm{Sec}[c+d\,x])^{9/2}\,\mathrm{Sin}[c+d\,x]}{63\,a^2\,d}-\frac{4\,i\,e^2\,(e\,\mathrm{Sec}[c+d\,x])^{11/2}}{7\,d\,\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 5, 285 leaves) :

$$\frac{1}{15\,d\,\mathrm{Sec}[c+d\,x]^{11/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,(e\,\mathrm{Sec}[c+d\,x])^{15/2}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\left(-\frac{1}{-1+e^{2\,i\,c}}22\,i\,\sqrt{2}\,e^{i\,(c-d\,x)}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\left(1+e^{2\,i\,(c+d\,x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)+\frac{1}{168}\,\mathrm{Csc}[c]\,\mathrm{Sec}[c+d\,x]^{9/2}\,(\mathrm{Cos}[2\,c]+i\,\mathrm{Sin}[2\,c])\,(1260\,\mathrm{Cos}[d\,x]+1050\,\mathrm{Cos}[2\,c+d\,x]+1078\,\mathrm{Cos}[2\,c+3\,d\,x]+77\,\mathrm{Cos}[4\,c+3\,d\,x]+231\,\mathrm{Cos}[4\,c+5\,d\,x]+720\,i\,\mathrm{Sin}[d\,x]-720\,i\,\mathrm{Sin}[2\,c+d\,x])\right)$$

- **Problem 235: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\mathrm{Sec}[c+d\,x])^{11/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 152 leaves, 5 steps) :

$$-\frac{14\,e^6\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,a^2\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\frac{14\,e^5\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{5\,a^2\,d}+\frac{14\,e^3\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}\,\mathrm{Sin}[c+d\,x]}{15\,a^2\,d}-\frac{4\,i\,e^2\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}}{3\,d\,\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 5, 263 leaves) :

$$\left((e\,\mathrm{Sec}[c+d\,x])^{11/2}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\right.$$

$$\left(-1\Big/\left(-1+e^{2\,i\,c}\right)14\,i\,\sqrt{2}\,e^{i\,(c-d\,x)}\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\left(1+e^{2\,i\,(c+d\,x)}+\left(-1+e^{2\,i\,c}\right)\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)+\right.$$

$$\left.\left.\frac{1}{6}\mathrm{Csc}[c]\,\mathrm{Sec}[c+d\,x]^{5/2}\,(\mathrm{Cos}[2\,c]+i\,\mathrm{Sin}[2\,c])\,(36\,\mathrm{Cos}[d\,x]+27\,\mathrm{Cos}[2\,c+d\,x]+21\,\mathrm{Cos}[2\,c+3\,d\,x]+20\,i\,\mathrm{Sin}[d\,x]-20\,i\,\mathrm{Sin}[2\,c+d\,x])\right)\right)\Big/$$

$$\left(5\,d\,\mathrm{Sec}[c+d\,x]^{7/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\right)$$

Problem 237: Result unnecessarily involves higher level functions.

$$\int\frac{(e\,\mathrm{Sec}[c+d\,x])^{7/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 115 leaves, 4 steps):

$$\frac{6\,e^4\,\mathrm{EllipticE}\left[\frac{1}{2}(c+d\,x),2\right]}{a^2\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}-\frac{6\,e^3\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{a^2\,d}+\frac{4\,i\,e^2\,(e\,\mathrm{Sec}[c+d\,x])^{3/2}}{d\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 5, 80 leaves):

$$\frac{2\,i\,e^3\,e^{-i\,(c+d\,x)}\left(-1+3\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\sqrt{e\,\mathrm{Sec}[c+d\,x]}}{a^2\,d}$$

Problem 239: Result unnecessarily involves higher level functions.

$$\int\frac{(e\,\mathrm{Sec}[c+d\,x])^{3/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 90 leaves, 3 steps):

$$\frac{2\,e^2\,\mathrm{EllipticE}\left[\frac{1}{2}(c+d\,x),2\right]}{5\,a^2\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\frac{4\,i\,e^2}{5\,d\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 5, 102 leaves):

$$\frac{1}{5\,a^2\,d}i\,e\,e^{-3\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}+2\,e^{2\,i\,(c+d\,x)}\sqrt{1+e^{2\,i\,(c+d\,x)}}\;\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,i\,(c+d\,x)}\right]\right)\sqrt{e\,\mathrm{Sec}[c+d\,x]}$$

Problem 241: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 116 leaves, 4 steps):

$$\frac{2\,\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{3 a^2 d \sqrt{\text{Cos}[c+d x]}\sqrt{e\,\text{Sec}[c+d x]}}+\frac{2 e\,\text{Sin}[c+d x]}{9 a^2 d\,(e\,\text{Sec}[c+d x])^{3/2}}+\frac{4\,\mathrm{i}\,e^2}{9 d\,(e\,\text{Sec}[c+d x])^{5/2}\left(a^2+\mathrm{i}\,a^2\,\text{Tan}[c+d x]\right)}$$

Result (type 5, 124 leaves):

$$\frac{1}{18 a^2 d \sqrt{e\,\text{Sec}[c+d x]}}\left(\text{Cos}[2(c+d x)]-\mathrm{i}\,\text{Sin}[2(c+d x)]\right)\left(4\,\mathrm{i}-8\,\mathrm{i}\,\text{Cos}[2(c+d x)]+\frac{24\,\mathrm{i}\,e^{2\,\mathrm{i}\,(c+d x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,\mathrm{i}\,(c+d x)}\right]}{\sqrt{1+e^{2\,\mathrm{i}\,(c+d x)}}}+10\,\text{Sin}[2(c+d x)]\right)$$

■ **Problem 243: Result unnecessarily involves higher level functions.**

$$\int\frac{1}{(e\,\text{Sec}[c+d x])^{5/2}\,(a+\mathrm{i}\,a\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 4, 150 leaves, 5 steps):

$$\frac{42\,\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{65 a^2 d e^2 \sqrt{\text{Cos}[c+d x]}\sqrt{e\,\text{Sec}[c+d x]}}+\frac{2 e\,\text{Sin}[c+d x]}{13 a^2 d\,(e\,\text{Sec}[c+d x])^{7/2}}+\frac{14\,\text{Sin}[c+d x]}{65 a^2 d e\,(e\,\text{Sec}[c+d x])^{3/2}}+\frac{4\,\mathrm{i}\,e^2}{13 d\,(e\,\text{Sec}[c+d x])^{9/2}\left(a^2+\mathrm{i}\,a^2\,\text{Tan}[c+d x]\right)}$$

Result (type 5, 149 leaves):

$$\left(\left(\text{Cos}[2(c+d x)]-\mathrm{i}\,\text{Sin}[2(c+d x)]\right)\left(88\,\mathrm{i}-256\,\mathrm{i}\,\text{Cos}[2(c+d x)]-8\,\mathrm{i}\,\text{Cos}[4(c+d x)]+\frac{672\,\mathrm{i}\,e^{2\,\mathrm{i}\,(c+d x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2\,\mathrm{i}\,(c+d x)}\right]}{\sqrt{1+e^{2\,\mathrm{i}\,(c+d x)}}}+316\,\text{Sin}[2(c+d x)]+18\,\text{Sin}[4(c+d x)]\right)\right)\Big/\left(520 a^2 d e^2 \sqrt{e\,\text{Sec}[c+d x]}\right)$$

■ **Problem 245: Result unnecessarily involves higher level functions.**

$$\int\frac{(e\,\text{Sec}[c+d x])^{15/2}}{(a+\mathrm{i}\,a\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 4, 178 leaves, 6 steps):

$$-\frac{22 e^8\,\text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{5 a^3 d \sqrt{\text{Cos}[c+d x]}\sqrt{e\,\text{Sec}[c+d x]}}-\frac{22\,\mathrm{i}\,e^4\,(e\,\text{Sec}[c+d x])^{7/2}}{21 a^3 d}+\frac{22 e^7\sqrt{e\,\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{5 a^3 d}+\frac{22 e^5\,(e\,\text{Sec}[c+d x])^{5/2}\,\text{Sin}[c+d x]}{15 a^3 d}-\frac{4\,\mathrm{i}\,e^2\,(e\,\text{Sec}[c+d x])^{11/2}}{3 a d\,(a+\mathrm{i}\,a\,\text{Tan}[c+d x])^2}$$

Result (type 5, 128 leaves):

$$-\frac{1}{210\,a^3\,d}e^6\,(e\,\mathrm{Sec}[c+d\,x])^{3/2}\left(-116-308\,\mathrm{Cos}[2\,(c+d\,x)]+231\,e^{-2\,i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{5/2}\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]+77\,i\,\mathrm{Sec}[c+d\,x]\,\mathrm{Sin}[3\,(c+d\,x)]+17\,i\,\mathrm{Tan}[c+d\,x]\right)\,(i+\mathrm{Tan}[c+d\,x])$$

- **Problem 247: Result unnecessarily involves higher level functions.**

$$\int \frac{(e\,\mathrm{Sec}[c+d\,x])^{11/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 4, 141 leaves, 5 steps):

$$\frac{14\,e^6\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{a^3\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\frac{14\,i\,e^4\,(e\,\mathrm{Sec}[c+d\,x])^{3/2}}{3\,a^3\,d}-\frac{14\,e^5\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{a^3\,d}+\frac{4\,i\,e^2\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}}{a\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}$$

Result (type 5, 101 leaves):

$$\frac{1}{3\,a^3\,d}2\,e^5\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,(\mathrm{Cos}[c]-i\,\mathrm{Sin}[c])\,(i\,\mathrm{Cos}[d\,x]+\mathrm{Sin}[d\,x])\left(-8+21\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]+i\,\mathrm{Tan}[c+d\,x]\right)$$

- **Problem 249: Result unnecessarily involves higher level functions.**

$$\int \frac{(e\,\mathrm{Sec}[c+d\,x])^{7/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 4, 116 leaves, 4 steps):

$$-\frac{6\,i\,e^4}{5\,a^3\,d\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}-\frac{6\,e^4\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{5\,a^3\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\frac{4\,i\,e^2\,(e\,\mathrm{Sec}[c+d\,x])^{3/2}}{5\,a\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}$$

Result (type 5, 117 leaves):

$$\frac{1}{5\,a^3\,d\,(-i+\mathrm{Tan}[c+d\,x])^3}2\,e\,e^{-i\,d\,x}\left(-2+\frac{6\,e^{2\,i\,(c+d\,x)}\,\mathrm{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]}{\sqrt{1+e^{2\,i\,(c+d\,x)}}}\right)(e\,\mathrm{Sec}[c+d\,x])^{5/2}\,(\mathrm{Cos}[c+2\,d\,x]+i\,\mathrm{Sin}[c+2\,d\,x])$$

- **Problem 251: Result unnecessarily involves higher level functions.**

$$\int \frac{(e\,\mathrm{Sec}[c+d\,x])^{3/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 4, 132 leaves, 4 steps):

$$\frac{2\,e^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{15\,a^3\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{4\,i\,e^2}{9\,a\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+\frac{2\,i\,e^2}{45\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 140 leaves) :

$$-\left(e^{-i\,d\,x}\,\text{Sec}[c+d\,x]^2\,(e\,\text{Sec}[c+d\,x])^{3/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\left(8+8\,\text{Cos}[2\,(c+d\,x)]+6\,e^{2\,i\,(c+d\,x)}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]+3\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(45\,a^3\,d\,(-i+\text{Tan}[c+d\,x])^3\right)$$

Problem 253: Result unnecessarily involves higher level functions.

$$\int\frac{1}{\sqrt{e\,\text{Sec}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 4, 152 leaves, 5 steps) :

$$\frac{14\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{39\,a^3\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{14\,e\,\text{Sin}[c+d\,x]}{117\,a^3\,d\,(e\,\text{Sec}[c+d\,x])^{3/2}}+\frac{2\,i}{13\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{28\,i\,e^2}{117\,d\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 145 leaves) :

$$\frac{1}{468\,a^3\,d\,e}\sqrt{e\,\text{Sec}[c+d\,x]}\,(i\,\text{Cos}[3\,(c+d\,x)]+\text{Sin}[3\,(c+d\,x)])\,\left(62+8\,\text{Cos}[2\,(c+d\,x)]-54\,\text{Cos}[4\,(c+d\,x)]+168\,e^{2\,i\,(c+d\,x)}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]-42\,i\,\text{Sin}[2\,(c+d\,x)]-63\,i\,\text{Sin}[4\,(c+d\,x)]\right)$$

Problem 255: Result unnecessarily involves higher level functions.

$$\int\frac{(e\,\text{Sec}[c+d\,x])^{15/2}}{(a+i\,a\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 4, 192 leaves, 6 steps) :

$$\frac{154\,e^8\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{5\,a^4\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}-\frac{154\,e^7\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{5\,a^4\,d}-\frac{154\,e^5\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\text{Sin}[c+d\,x]}{15\,a^4\,d}+\frac{4\,i\,e^2\,(e\,\text{Sec}[c+d\,x])^{11/2}}{a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{44\,i\,e^4\,(e\,\text{Sec}[c+d\,x])^{7/2}}{3\,d\,\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 135 leaves) :

$$\left(32\, i\, e^7\, e^{7 i (c+d x)} \left(-111-176\, e^{2 i (c+d x)}-77\, e^{4 i (c+d x)}+231 \left(1+e^{2 i (c+d x)}\right)^{5/2} \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2 i (c+d x)}\right]\right) \sqrt{e \,\text{Sec}[c+d x]}\right) \Big/ \left(15\, a^4\, d \left(1+e^{2 i (c+d x)}\right)^6 (-i+\text{Tan}[c+d x])^4\right)$$

- **Problem 257: Result unnecessarily involves higher level functions.**

$$\int \frac{(e \,\text{Sec}[c+d x])^{11/2}}{(a+i\, a \,\text{Tan}[c+d x])^4}\, dx$$

Optimal (type 4, 163 leaves, 5 steps):

$$-\frac{42\, e^6\, \text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{5\, a^4\, d \sqrt{\text{Cos}[c+d x]} \sqrt{e \,\text{Sec}[c+d x]}}+\frac{42\, e^5 \sqrt{e \,\text{Sec}[c+d x]}\, \text{Sin}[c+d x]}{5\, a^4\, d}+\frac{4\, i\, e^2 (e \,\text{Sec}[c+d x])^{7/2}}{5\, a\, d\, (a+i\, a \,\text{Tan}[c+d x])^3}-\frac{28\, i\, e^4 (e \,\text{Sec}[c+d x])^{3/2}}{5\, d \left(a^4+i\, a^4 \,\text{Tan}[c+d x]\right)}$$

Result (type 5, 106 leaves):

$$-\frac{1}{5\, a^4\, d} 2\, i\, e^5\, e^{-3 i (c+d x)} \left(-2-7\, e^{2 i (c+d x)}+21\, e^{2 i (c+d x)} \sqrt{1+e^{2 i (c+d x)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2 i (c+d x)}\right]\right) \sqrt{e \,\text{Sec}[c+d x]}$$

- **Problem 259: Result unnecessarily involves higher level functions.**

$$\int \frac{(e \,\text{Sec}[c+d x])^{7/2}}{(a+i\, a \,\text{Tan}[c+d x])^4}\, dx$$

Optimal (type 4, 132 leaves, 4 steps):

$$-\frac{2\, e^4\, \text{EllipticE}\left[\frac{1}{2}(c+d x),2\right]}{15\, a^4\, d \sqrt{\text{Cos}[c+d x]} \sqrt{e \,\text{Sec}[c+d x]}}+\frac{4\, i\, e^2 (e \,\text{Sec}[c+d x])^{3/2}}{9\, a\, d\, (a+i\, a \,\text{Tan}[c+d x])^3}-\frac{4\, i\, e^4}{15\, d \sqrt{e \,\text{Sec}[c+d x]} \left(a^4+i\, a^4 \,\text{Tan}[c+d x]\right)}$$

Result (type 5, 149 leaves):

$$\left(e^3\, e^{-i d x}\, \text{Sec}[c+d x]^4 \sqrt{e \,\text{Sec}[c+d x]} \left(-7-7 \,\text{Cos}[2 (c+d x)]+6\, e^{2 i (c+d x)} \sqrt{1+e^{2 i (c+d x)}}\, \text{Hypergeometric2F1}\left[-\frac{1}{4},\frac{1}{2},\frac{3}{4},-e^{2 i (c+d x)}\right]+3\, i \,\text{Sin}[2 (c+d x)]\right) (-i \,\text{Cos}[c+2 d x]+\text{Sin}[c+2 d x])\right) \Big/ \left(45\, a^4\, d\, (-i+\text{Tan}[c+d x])^4\right)$$

- **Problem 261: Result unnecessarily involves higher level functions.**

$$\int \frac{(e \,\text{Sec}[c+d x])^{3/2}}{(a+i\, a \,\text{Tan}[c+d x])^4}\, dx$$

Optimal (type 4, 163 leaves, 5 steps):

$$\frac{2\,e^2\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{39\,a^4\,d\,\sqrt{\text{Cos}[c+d\,x]}\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{2\,e^3\,\text{Sin}[c+d\,x]}{117\,a^4\,d\,(e\,\text{Sec}[c+d\,x])^{3/2}}+$$
$$\frac{4\,i\,e^2}{13\,a\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{4\,i\,e^4}{117\,d\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}$$

Result (type 5, 142 leaves):

$$\left(i\,e^{-i\,d\,x}\,\text{Sec}[c+d\,x]^2\,(e\,\text{Sec}[c+d\,x])^{3/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\right.$$
$$\left.\left(28+40\,\text{Cos}[2\,(c+d\,x)]+\frac{24\,e^{4\,i\,(c+d\,x)}\,\text{Hypergeometric2F1}\left[-\frac{1}{4},\,\frac{1}{2},\,\frac{3}{4},\,-e^{2\,i\,(c+d\,x)}\right]}{\sqrt{1+e^{2\,i\,(c+d\,x)}}}+22\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(234\,a^4\,d\,(-i+\text{Tan}[c+d\,x])^4\right)$$

- **Problem 267: Result more than twice size of optimal antiderivative.**

$$\int (d\,\text{Sec}[e+f\,x])^{5/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^2\,dx$$

Optimal (type 5, 71 leaves, 4 steps):

$$\frac{12\,i\,2^{5/6}\,a^2\,\text{Hypergeometric2F1}\left[-\frac{11}{6},\,\frac{5}{6},\,\frac{11}{6},\,\frac{1}{2}\,(1-i\,\text{Tan}[e+f\,x])\right]\,(d\,\text{Sec}[e+f\,x])^{5/3}}{5\,f\,(1+i\,\text{Tan}[e+f\,x])^{5/6}}$$

Result (type 5, 264 leaves):

$$\left((d\,\text{Sec}[e+f\,x])^{5/3}\left(-1\Big/\left(-1+e^{2\,i\,e}\right)33\,i\,2^{2/3}\,e^{-i\,(3\,e+f\,x)}\right.\right.$$
$$\left(\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}\right)^{2/3}\left(1+e^{2\,i\,(e+f\,x)}+\left(-1+e^{2\,i\,e}\right)\,\left(1+e^{2\,i\,(e+f\,x)}\right)^{2/3}\,\text{Hypergeometric2F1}\left[-\frac{1}{6},\,\frac{2}{3},\,\frac{5}{6},\,-e^{2\,i\,(e+f\,x)}\right]\right)+$$
$$\left.\frac{3}{20}\,\text{Csc}[e]\,\text{Sec}[e+f\,x]^{8/3}\,(\text{Cos}[2\,e]-i\,\text{Sin}[2\,e])\,(90\,\text{Cos}[f\,x]+75\,\text{Cos}[2\,e+f\,x]+55\,\text{Cos}[2\,e+3\,f\,x]-64\,i\,\text{Sin}[f\,x]+64\,i\,\text{Sin}[2\,e+f\,x])\right)$$
$$\left.(a+i\,a\,\text{Tan}[e+f\,x])^2\right)\Big/\left(16\,f\,\text{Sec}[e+f\,x]^{11/3}\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\right)$$

- **Problem 278: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(d\,\text{Sec}[e+f\,x])^{5/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 71 leaves, 4 steps):

$$-\frac{3\,i\,\text{Hypergeometric2F1}\left[-\frac{5}{6},\,\frac{23}{6},\,\frac{1}{6},\,\frac{1}{2}\,(1-i\,\text{Tan}[e+f\,x])\right]\,(1+i\,\text{Tan}[e+f\,x])^{5/6}}{20\times 2^{5/6}\,a^2\,f\,(d\,\text{Sec}[e+f\,x])^{5/3}}$$

Result (type 5, 143 leaves) :

$$\left(3\,i\,\mathrm{Sec}[e+f\,x]^4\left(-46-40\,\mathrm{Cos}[2\,(e+f\,x)]+6\,\mathrm{Cos}[4\,(e+f\,x)]+128\,e^{2\,i\,(e+f\,x)}\left(1+e^{2\,i\,(e+f\,x)}\right)^{1/3}\mathrm{Hypergeometric2F1}\left[\frac{1}{6},\frac{1}{3},\frac{7}{6},-e^{2\,i\,(e+f\,x)}\right]-10\,i\,\mathrm{Sin}[2\,(e+f\,x)]+11\,i\,\mathrm{Sin}[4\,(e+f\,x)]\right)\right)\Big/\left(680\,a^2\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(-i+\mathrm{Tan}[e+f\,x])^2\right)$$

- **Problem 296: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 29 leaves, 2 steps) :

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}}{5\,a\,d}$$

Result (type 3, 69 leaves) :

$$\frac{2\,a\,\mathrm{Sec}[c+d\,x]^2\,(\mathrm{Cos}[d\,x]-i\,\mathrm{Sin}[d\,x])\,(-i\,\mathrm{Cos}[2\,c+3\,d\,x]+\mathrm{Sin}[2\,c+3\,d\,x])\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{5\,d}$$

- **Problem 309: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 29 leaves, 2 steps) :

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{7/2}}{7\,a\,d}$$

Result (type 3, 73 leaves) :

$$\frac{2\,a^2\,\mathrm{Sec}[c+d\,x]^3\,(-i\,\mathrm{Cos}[3\,c+5\,d\,x]+\mathrm{Sin}[3\,c+5\,d\,x])\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{7\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2}$$

- **Problem 322: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 29 leaves, 2 steps) :

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{9/2}}{9\,a\,d}$$

Result (type 3, 73 leaves) :

$$\frac{2\,a^3\,\mathrm{Sec}[c+d\,x]^4\,(-i\,\mathrm{Cos}[4\,c+7\,d\,x]+\mathrm{Sin}[4\,c+7\,d\,x])\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{9\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3}$$

Problem 329: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^5 (a+i a \text{Tan}[c+d x])^{7/2} \, dx$$

Optimal (type 3, 35 leaves, 1 step):

$$-\frac{2 i a \text{Cos}[c+d x]^5 (a+i a \text{Tan}[c+d x])^{5/2}}{5 d}$$

Result (type 3, 73 leaves):

$$\frac{2 a^3 \text{Cos}[c+d x]^3 (-i \text{Cos}[2 c+5 d x]+\text{Sin}[2 c+5 d x]) \sqrt{a+i a \text{Tan}[c+d x]}}{5 d (\text{Cos}[d x]+i \text{Sin}[d x])^3}$$

Problem 394: Result more than twice size of optimal antiderivative.

$$\int (e \text{Sec}[c+d x])^{3/2} \sqrt{a+i a \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 524 leaves, 12 steps):

$$\frac{i a (e \text{Sec}[c+d x])^{3/2}}{d \sqrt{a+i a \text{Tan}[c+d x]}}-\frac{i a^{3/2} e^{3/2} \text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e} \sqrt{a-i a \text{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \text{Sec}[c+d x]}}\right] \text{Sec}[c+d x]}{\sqrt{2} d \sqrt{a-i a \text{Tan}[c+d x]} \sqrt{a+i a \text{Tan}[c+d x]}}+\frac{i a^{3/2} e^{3/2} \text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e} \sqrt{a-i a \text{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \text{Sec}[c+d x]}}\right] \text{Sec}[c+d x]}{\sqrt{2} d \sqrt{a-i a \text{Tan}[c+d x]} \sqrt{a+i a \text{Tan}[c+d x]}}+$$
$$\frac{i a^{3/2} e^{3/2} \text{Log}\left[a-\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a-i a \text{Tan}[c+d x]}}{\sqrt{e \text{Sec}[c+d x]}}+\text{Cos}[c+d x] (a-i a \text{Tan}[c+d x])\right] \text{Sec}[c+d x]}{2 \sqrt{2} d \sqrt{a-i a \text{Tan}[c+d x]} \sqrt{a+i a \text{Tan}[c+d x]}}-$$
$$\frac{i a^{3/2} e^{3/2} \text{Log}\left[a+\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a-i a \text{Tan}[c+d x]}}{\sqrt{e \text{Sec}[c+d x]}}+\text{Cos}[c+d x] (a-i a \text{Tan}[c+d x])\right] \text{Sec}[c+d x]}{2 \sqrt{2} d \sqrt{a-i a \text{Tan}[c+d x]} \sqrt{a+i a \text{Tan}[c+d x]}}$$

Result (type 3, 1530 leaves):

$$\frac{1}{d \sqrt{\text{Cos}[d x]+i \text{Sin}[d x]}}$$
$$\text{Cos}[c+d x] (e \text{Sec}[c+d x])^{3/2} \left(i \text{Cos}[c+d x] \sqrt{\text{Cos}[d x]+i \text{Sin}[d x]}+\sqrt{\text{Cos}[d x]+i \text{Sin}[d x]} \text{Sin}[c+d x]\right) \sqrt{a+i a \text{Tan}[c+d x]}+$$
$$\left((1+i) \left(\text{ArcTan}\left[\frac{(-1)^{1/4} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]+i \text{ArcTan}\left[\frac{\sqrt{-1+i} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i} \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\right.$$
$$\text{Cos}[c+d x]^2 (e \text{Sec}[c+d x])^{3/2} \left(\text{Cos}\left[\frac{c}{2}\right]+i \text{Sin}\left[\frac{c}{2}\right]\right) (i \text{Cos}[c]+\text{Sin}[c]) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]} \sqrt{a+i a \text{Tan}[c+d x]}$$

$$\left(\frac{1}{2}\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}-\frac{1}{2}\,i\,\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\,\text{Tan}[c+d x]\right)\Bigg/\left(d\sqrt{2\,i-2\,\text{Tan}\left[\frac{d x}{2}\right]}\right.$$

$$\left(\left(\left(\frac{1}{4}+\frac{i}{4}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]+i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\text{Sec}\left[\frac{d x}{2}\right]^2\right.\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)(i\,\text{Cos}[c]+\text{Sin}[c])\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\right)\Bigg/\left(\sqrt{2\,i-2\,\text{Tan}\left[\frac{d x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)+\frac{1}{\left(2\,i-2\,\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]+i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right)$$

$$\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)(i\,\text{Cos}[c]+\text{Sin}[c])\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]+i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)(i\,\text{Cos}[c]+\text{Sin}[c])\,(i\,\text{Cos}[d x]-\text{Sin}[d x])\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\Bigg/\left(\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\,\sqrt{2\,i-2\,\text{Tan}\left[\frac{d x}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{2\,i-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(i\,\mathrm{Cos}[c]+\mathrm{Sin}[c])\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(\frac{i\left(\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\left.\frac{\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right)\Bigg)\Bigg)$$

- **Problem 395: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 323 leaves, 10 steps):

$$\frac{i\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{d}-\frac{i\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{d}-$$

$$\frac{i\sqrt{a}\,\sqrt{e}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{\sqrt{2}\,d}+$$

$$\frac{i\sqrt{a}\,\sqrt{e}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{\sqrt{2}\,d}$$

Result (type 3, 1344 leaves):

$$\left((1+i)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\sqrt{e\,\text{Sec}[c+d\,x]}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)\Bigg/$$

$$\left(d\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\left(\left(\left(\frac{1}{4}+\frac{i}{4}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\right)\Bigg/\left(\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\frac{1}{\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{1}{4}+\frac{i}{4}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(2\,i\,\text{Cos}[d\,x]-2\,\text{Sin}[d\,x]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/\left(\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\,(1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(-\frac{i\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\left.\left.\left.\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right)\right)\right)$$

- **Problem 400: Result more than twice size of optimal antiderivative.**

$$\int(e\,\text{Sec}[c+d\,x])^{5/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 453 leaves, 13 steps) :

$$\frac{7\,i\,a^{3/2}\,e^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{8\,\sqrt{2}\,d}-\frac{7\,i\,a^{3/2}\,e^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{8\,\sqrt{2}\,d}-$$

$$\frac{7\,i\,a^{3/2}\,e^{5/2}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{16\,\sqrt{2}\,d}+$$

$$\frac{7\,i\,a^{3/2}\,e^{5/2}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{16\,\sqrt{2}\,d}+\frac{7\,i\,a^2\,(e\,\text{Sec}[c+d\,x])^{5/2}}{12\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{7\,i\,a\,e^2\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{8\,d}+\frac{i\,a\,(e\,\text{Sec}[c+d\,x])^{5/2}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 3, 1537 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}\text{Cos}[c+d\,x]^4\,(e\,\text{Sec}[c+d\,x])^{5/2}$$

$$\left(\text{Sec}[c+d\,x]\left(-\frac{7}{8}\,i\,\text{Cos}[c]-\frac{7\,\text{Sin}[c]}{8}\right)+\text{Sec}[c+d\,x]^3\left(\frac{1}{3}\,i\,\text{Cos}[c]+\frac{\text{Sin}[c]}{3}\right)+\text{Sec}[c+d\,x]^2\left(\frac{7}{12}\,i\,\text{Cos}[2\,c+d\,x]+\frac{7}{12}\,\text{Sin}[2\,c+d\,x]\right)\right)$$

$$(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}+$$

$$\left(\left(\frac{7}{8}+\frac{7\,i}{8}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\text{Cos}[c+d\,x]^3\,(e\,\text{Sec}[c+d\,x])^{5/2}\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(\frac{7}{16}\,\text{Cos}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}-\frac{7}{16}\,i\,\text{Sin}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)$$

$$\left.\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\right)\Bigg/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\Bigg(\bigg(\left(\frac{7}{32}+\frac{7\,i}{32}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\bigg)\Big/\left(\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\frac{1}{\left(2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{7}{16}+\frac{7\,i}{16}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\bigg(\left(\frac{7}{16}+\frac{7\,i}{16}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\bigg)\Big/\left(\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\frac{7}{8}+\frac{7\,i}{8}\right)\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$-\frac{i\left(\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}+\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}{4\sqrt{-1-i}\left(i-\mathrm{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{dx}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}}+$$

$$\left.\left.\left.\frac{\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}+\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}{4\left(i-\mathrm{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{dx}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}}\right)\right)\right)$$

Problem 401: Result more than twice size of optimal antiderivative.

$$\int (e\,\mathrm{Sec}[c+d x])^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}\,dx$$

Optimal (type 3, 571 leaves, 13 steps):

$$\frac{5\,i\,a^2\,(e\,\mathrm{Sec}[c+d x])^{3/2}}{4\,d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}-\frac{5\,i\,a^{5/2}\,e^{3/2}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d x]}}\right]\mathrm{Sec}[c+d x]}{4\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}+\frac{5\,i\,a^{5/2}\,e^{3/2}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d x]}}\right]\mathrm{Sec}[c+d x]}{4\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}+$$

$$\frac{5\,i\,a^{5/2}\,e^{3/2}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}}{\sqrt{e\,\mathrm{Sec}[c+d x]}}+\mathrm{Cos}[c+d x]\,(a-i\,a\,\mathrm{Tan}[c+d x])\right]\mathrm{Sec}[c+d x]}{8\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}-$$

$$\frac{5\,i\,a^{5/2}\,e^{3/2}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}}{\sqrt{e\,\mathrm{Sec}[c+d x]}}+\mathrm{Cos}[c+d x]\,(a-i\,a\,\mathrm{Tan}[c+d x])\right]\mathrm{Sec}[c+d x]}{8\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\mathrm{Tan}[c+d x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}+\frac{i\,a\,(e\,\mathrm{Sec}[c+d x])^{3/2}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}{2\,d}$$

Result (type 3, 5861 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])}$$

$$\mathrm{Cos}[c+d x]^3\,(e\,\mathrm{Sec}[c+d x])^{3/2}\left(\mathrm{Sec}[c+d x]^2\left(\frac{1}{2}\,i\,\mathrm{Cos}[c]+\frac{\mathrm{Sin}[c]}{2}\right)+\mathrm{Sec}[c+d x]\left(\frac{5}{4}\,i\,\mathrm{Cos}[2 c+d x]+\frac{5}{4}\,\mathrm{Sin}[2 c+d x]\right)\right)$$

$$(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}+\frac{1}{8\,d\,(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])^{3/2}}\,5\,\mathrm{Cos}[c+d x]^3\,(e\,\mathrm{Sec}[c+d x])^{3/2}$$

$$\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}(1+i)\,\text{Cos}[c]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\sqrt{\frac{i-\text{Tan}\left[\frac{d x}{2}\right]}{i+\text{Tan}\left[\frac{d x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,i)\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}-\right.\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+\right.\right.\right.$$

$$\left.\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left.\left.\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(-\text{Sin}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d x}{2}\right]\right)+\text{Cos}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d x}{2}\right]\right)\right)\right)\right]\sqrt{-1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\left[-\left((2-2\,i)\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\sqrt{1+\text{Sin}[c]}-\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\right.\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)+\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\sqrt{1+\text{Sin}[c]}+\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\Big/$$

$$\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d x}{2}\right]\right)+\text{Sin}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d x}{2}\right]\right)\right)\right)\right]\sqrt{1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)-$$

$$\text{Sin}\left[\frac{c}{2}\right]\left((2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}+\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\right.\right.\right.\right.$$

$$\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+$$

$$\left.\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(-\mathrm{Sin}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Cos}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Big)\Big)\Big]\sqrt{-1+\mathrm{Sin}[c]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Big[$$

$$-\left((2-2\,\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)+\right.\right.$$

$$\left.\left.\mathrm{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left.\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Sin}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Big)\Big)\Big]\sqrt{1+\mathrm{Sin}[c]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)-$$

$$\left((1+\mathrm{i})\,\mathrm{Cos}[2\,c]^2\,\mathrm{Cos}[d\,x]\,\mathrm{Sec}[c+d\,x]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\left((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\right.\right.$$

$$\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\left.\left.\mathrm{i}\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Big/$$

$$\left(\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\left(-\frac{1}{\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Cos}[2\,c]\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\right.\right.$$

$$\Bigg((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-\Bigg(\left(\frac{1}{2}+\frac{i}{2}\right)\mathrm{Cos}[2\,c]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)$$

$$(i\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\Bigg((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]$$

$$\mathrm{Sin}[c]\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+i\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\,\mathrm{Cos}[2\,c]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}$$

$$\left(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\sqrt{2}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\left(i\sqrt{2}\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\,\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\Bigg)\Bigg/$$

$$\left(1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\left(\sqrt{2}\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\left(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.\right.$$

$$\left.\left.\left.\left.\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\Bigg/\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\right)$$

$$(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}-\frac{1}{8\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{3/2}}\,5\,i\,\text{Cos}[c+d\,x]^3\,(e\,\text{Sec}[c+d\,x])^{3/2}\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right.$$

$$\left(\frac{1}{2}+\frac{i}{2}\right)$$

$$\text{Cos}[2\,c]$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)$$

$$\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$

$$\Bigg(\mathrm{Cos}\left[\frac{c}{2}\right]\Bigg((-2+2\,i)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{Log}\Bigg[\Bigg((2+2\,i)\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\mathrm{Cot}\left[\frac{c}{2}\right]\right)\mathrm{Sin}\left[\frac{c}{2}\right]^2\Bigg(\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\mathrm{Cot}\left[\frac{c}{2}\right]\Bigg(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg]\sqrt{-1+\mathrm{Sin}[c]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}-$$

$$\sqrt{2}\,\mathrm{Log}\Bigg[\Bigg((2-2\,i)\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\left(\mathrm{Cos}\left[\frac{c}{2}\right]+i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\mathrm{Sin}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+\mathrm{Cos}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg]\sqrt{1+\mathrm{Sin}[c]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+$$

$$\mathrm{Sin}\left[\frac{c}{2}\right]\Bigg((2+2\,i)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Bigg[\Bigg((2+2\,i)\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\mathrm{Cot}\left[\frac{c}{2}\right]\right)\mathrm{Sin}\left[\frac{c}{2}\right]^2\Bigg(\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+$$

$$\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{Cot}\left[\frac{c}{2}\right]\Bigg(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg]\sqrt{-1+\mathrm{Sin}[c]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\Bigg[\Bigg((2-2\,i)\,\text{Cos}\Big[\frac{d\,x}{2}\Big]\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]+i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\Bigg(\text{Sin}\Big[\frac{c}{2}\Big]\,\Bigg(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\Big[\frac{d\,x}{2}\Big]+2\,i\,\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}$$

$$\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,\Bigg)+\text{Cos}\Big[\frac{c}{2}\Big]\,\Bigg(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\Big[\frac{d\,x}{2}\Big]+2\,i\,\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Big(\text{Cos}\Big[\frac{c}{2}\Big]-\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]+\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\Big(\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\Bigg)\Bigg]\,\sqrt{1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,\Bigg)\Bigg)-$$

$$\Bigg((1+i)\,\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\text{Sin}[2\,c]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\Bigg((1+i)\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}+$$

$$\sqrt{2}\,\text{ArcTan}\Bigg[\frac{(-1)^{1/4}\,\Big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\Big)\,\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}+$$

$$i\,\sqrt{2}\,\text{ArcTan}\Bigg[\frac{\sqrt{-1+i}\,\Big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\Big)\,\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,\Bigg(-\frac{1}{\big(i-\text{Tan}\big[\frac{d\,x}{2}\big]\big)^{3/2}}\Big(\frac{1}{4}+\frac{i}{4}\Big)\,\text{Sec}\Big[\frac{d\,x}{2}\Big]^2\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\text{Sin}[2\,c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$

$$\Bigg((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[2\,c]\,(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\left((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\right.\right.$$

$$\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+i\sqrt{2}$$

$$\left.\left.\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Big/\left(\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[2\,c]\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\left(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\text{Sec}\left[\frac{d x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\text{Sec}\left[\frac{d x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+$$

$$\left(i\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\right.\right.$$

$$\left.\left.\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\sqrt{-1-i}\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)\right)\Big/\left(1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}\right)+$$

$$\left(\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\left(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)\right)\Big/$$

$$\left.\left.\left.\left.\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\right)\right)(a+i\,a\,\text{Tan}[c+d x])^{3/2}$$

- **Problem 402: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{e\,\text{Sec}[c+d x]}\,(a+i\,a\,\text{Tan}[c+d x])^{3/2}\,dx$$

Optimal (type 3, 364 leaves, 11 steps) :

$$\frac{3\,i\,a^{3/2}\sqrt{e}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{\sqrt{2}\,d}-\frac{3\,i\,a^{3/2}\sqrt{e}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{\sqrt{2}\,d}-$$

$$\frac{3\,i\,a^{3/2}\sqrt{e}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{2\sqrt{2}\,d}+$$

$$\frac{3\,i\,a^{3/2}\sqrt{e}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{2\sqrt{2}\,d}+\frac{i\,a\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 3, 1488 leaves) :

$$\left(\text{Cos}[c+d\,x]\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(i\,\text{Cos}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}+\text{Sin}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{3/2}\right)+$$

$$\left((3+3\,i)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\text{Cos}[c+d\,x]\,\sqrt{e\,\text{Sec}[c+d\,x]}\,\left(\text{Cos}\left[\frac{3\,c}{2}\right]-i\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(\frac{3}{2}\,\text{Cos}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}-\frac{3}{2}\,i\,\text{Sin}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)$$

$$\left.\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\left(\left(\frac{3}{4}+\frac{3\,i}{4}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{3\,c}{2}\right]-i\operatorname{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\operatorname{Cos}[d\,x]+i\operatorname{Sin}[d\,x]}\right)\Big/\left(\sqrt{2\,i-2\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\right)+\frac{1}{\left(2\,i-2\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{3}{2}+\frac{3\,i}{2}\right)\left(\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{3\,c}{2}\right]-i\operatorname{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\operatorname{Cos}[d\,x]+i\operatorname{Sin}[d\,x]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\left(\left(\frac{3}{2}+\frac{3\,i}{2}\right)\left(\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\operatorname{Cos}\left[\frac{3\,c}{2}\right]-i\operatorname{Sin}\left[\frac{3\,c}{2}\right]\right)(i\operatorname{Cos}[d\,x]-\operatorname{Sin}[d\,x])\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/\left(\sqrt{\operatorname{Cos}[d\,x]+i\operatorname{Sin}[d\,x]}\sqrt{2\,i-2\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{2\,i-2\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}(3+3\,i)\left(\operatorname{Cos}\left[\frac{3\,c}{2}\right]-i\operatorname{Sin}\left[\frac{3\,c}{2}\right]\right)\sqrt{\operatorname{Cos}[d\,x]+i\operatorname{Sin}[d\,x]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(-\frac{i\left(\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}}\Bigg)\Bigg)\Bigg)$$

- **Problem 403: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\sqrt{e\,\text{Sec}[c+d\,x]}}\,dx$$

Optimal (type 3, 520 leaves, 12 steps):

$$\frac{i\sqrt{2}\,a^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{d\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{i\sqrt{2}\,a^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{d\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{i\,a^{5/2}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$

$$\frac{i\,a^{5/2}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{4\,i\,a\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\sqrt{e\,\text{Sec}[c+d\,x]}}$$

Result (type 3, 5881 leaves):

$$-\frac{4\,i\,\text{Cos}[c]\,\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{d\sqrt{e\,\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}-$$

$$\frac{4\,\text{Cos}[c+d\,x]\,\text{Sin}[c]\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{d\sqrt{e\,\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}-\frac{1}{d\sqrt{e\,\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{3/2}\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}$$

$$(1+i)\,\text{Cos}[c]\,\text{Cos}[c+d\,x]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\sqrt{\frac{i-\text{Tan}\left[\frac{d x}{2}\right]}{i+\text{Tan}\left[\frac{d x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}-\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+\right.\right.\right.$$

$$\mathrm{Cot}\left[\frac{c}{2}\right] \Big(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(-\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)+\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)\Big)\Big)\Big)\Big]\,\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\mathrm{Log}\Big[-\Big((2-2\,\mathrm{i})\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)+$$

$$\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/\,\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)$$

$$\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)+\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)\Big)\Big)\Big)\Big]\,\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)-\mathrm{Sin}\left[\frac{c}{2}\right]$$

$$\Big((2+2\,\mathrm{i})\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Big[\Big((1+\mathrm{i})\,\Big(2-2\,\mathrm{i}\,\mathrm{Cot}\left[\frac{c}{2}\right]\Big)\,\mathrm{Sin}\left[\frac{c}{2}\right]^2\,\Big(\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]-2\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\mathrm{Cot}\left[\frac{c}{2}\right]\,\Big(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(-\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)+\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)\Big)\Big)\Big)\Big]\,\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\mathrm{Log}\Big[-\Big((2-2\,\mathrm{i})\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)+$$

$$\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]\,\Big(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)+\mathrm{Sin}\left[\frac{c}{2}\right]\,\Big(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\Big)\Big)\Big)\Big)\Big]\,\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)$$

$$(a + i\, a \operatorname{Tan}[c + d x])^{3/2} + \Bigg((1 + i) \operatorname{Cos}[2 c]^2 \operatorname{Cos}[d x] \left(\operatorname{Cos}\left[\frac{c}{2}\right] - i \operatorname{Sin}\left[\frac{c}{2}\right]\right)$$

$$\Bigg((1 + i) \left(\operatorname{Cos}\left[\frac{c}{2}\right] - i \operatorname{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i - \operatorname{Tan}\left[\frac{d x}{2}\right]} +$$

$$\sqrt{2} \operatorname{ArcTan}\left[\frac{(-1)^{1/4} \left(\operatorname{Cos}\left[\frac{c}{2}\right] - i \operatorname{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i - \operatorname{Tan}\left[\frac{d x}{2}\right]}}\right] \operatorname{Sin}[c] \sqrt{i + \operatorname{Tan}\left[\frac{d x}{2}\right]} +$$

$$i \sqrt{2} \operatorname{ArcTan}\left[\frac{\sqrt{-1 + i} \left(\operatorname{Cos}\left[\frac{c}{2}\right] - i \operatorname{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1 - i} \sqrt{i - \operatorname{Tan}\left[\frac{d x}{2}\right]}}\right] \operatorname{Sin}[c] \sqrt{i + \operatorname{Tan}\left[\frac{d x}{2}\right]}\Bigg)$$

$$(a + i\, a \operatorname{Tan}[c + d x])^{3/2}\Bigg) \Bigg/ \Bigg(d \sqrt{e \operatorname{Sec}[c + d x]}$$

$$\sqrt{\operatorname{Cos}[d x] + i \operatorname{Sin}[d x]}$$

$$\sqrt{i - \operatorname{Tan}\left[\frac{d x}{2}\right]}$$

$$\Bigg(-\frac{1}{\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Cos}[2\,c]\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}$$

$$\Bigg((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-$$

$$\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Cos}[2\,c]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{i}\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\Bigg((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/\left(\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}(1+i)\,\text{Cos}[2 c]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\left(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}+\right.$$

$$\frac{\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\text{Sec}\left[\frac{d x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\text{Sec}\left[\frac{d x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+$$

$$\left(i\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\sqrt{-1-i}\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)\right)\Big/$$

$$\left(1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}\right)+\left(\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\left(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\right.\right.$$

$$\left.\left.\left.\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)\right)\Big/\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)+$$

$$\frac{1}{d\sqrt{e\,\text{Sec}[c+d\,x]}\;(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{3/2}}\,i\,\text{Cos}[c+d\,x]\,\Bigg(\frac{1}{\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\left(\frac{1}{2}+\frac{i}{2}\right)\text{Cos}[2\,c]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)$$

$$\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\;\Bigg(\text{Cos}\left[\frac{c}{2}\right]\Bigg((-2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;+$$

$$\sqrt{2}\,\text{Log}\Bigg[\Bigg((2+2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\Bigg(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\;+\text{Cot}\left[\frac{c}{2}\right]\Bigg(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Bigg]\,\sqrt{-1+\text{Sin}[c]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\;-$$

$$\sqrt{2}\,\text{Log}\Bigg[\Bigg((2-2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\text{Sin}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\;-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\;\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+\text{Cos}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\;+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\;\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Bigg]\,\sqrt{1+\text{Sin}[c]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\;\Bigg)+$$

$$\text{Sin}\left[\frac{c}{2}\right]\Bigg((2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;+\sqrt{2}\,\text{Log}\Bigg[\Bigg((2+2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\Bigg(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;+$$

$$\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\;\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\;+$$

$$\mathrm{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg]\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{Log}\Bigg[\Bigg((2-2\,i)\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\left(\mathrm{Cos}\left[\frac{c}{2}\right]+i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\mathrm{Sin}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+\mathrm{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg]\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)-$$

$$\Bigg((1+i)\,\mathrm{Cos}[d\,x]\,\mathrm{Sec}[c+d\,x]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]^2\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\Bigg((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\left(-\frac{1}{\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{i}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^{2}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]\,\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\right.\right.$$

$$\left((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\right.$$

$$\left.i\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]\,(i\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\left((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\right.\right.$$

$$\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+i\,\sqrt{2}$$

$$\left.\left.\left.\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\middle/\left(\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\,(1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[2\,c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\Bigg(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\Bigg(i\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,\Bigg(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\,\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\Bigg)\Bigg)\Bigg/\left(1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\Bigg(\sqrt{2}\,\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,\Bigg(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\Bigg)\Bigg)\Bigg/$$

$$\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg)\Bigg)\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}$$

- **Problem 408: Result more than twice size of optimal antiderivative.**

$$\int (e\,\text{Sec}[c+d\,x])^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 612 leaves, 14 steps):

$$\frac{15\,i\,a^3\,(e\,\text{Sec}[c+d\,x])^{3/2}}{8\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{15\,i\,a^{7/2}\,e^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\,\text{Sec}[c+d\,x]}{8\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$
$$\frac{15\,i\,a^{7/2}\,e^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\,\text{Sec}[c+d\,x]}{8\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$
$$\frac{15\,i\,a^{7/2}\,e^{3/2}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\,\text{Sec}[c+d\,x]}{16\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$
$$\frac{15\,i\,a^{7/2}\,e^{3/2}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\,\text{Sec}[c+d\,x]}{16\,\sqrt{2}\,d\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$
$$\frac{3\,i\,a^2\,(e\,\text{Sec}[c+d\,x])^{3/2}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{4\,d}+\frac{i\,a\,(e\,\text{Sec}[c+d\,x])^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 3, 5917 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}$$
$$\text{Cos}[c+d\,x]^4\,(e\,\text{Sec}[c+d\,x])^{3/2}\left(\text{Sec}[c+d\,x]^2\left(\frac{17}{12}\,i\,\text{Cos}[2\,c]+\frac{17}{12}\,\text{Sin}[2\,c]\right)+\text{Sec}[c+d\,x]^3\left(-\frac{1}{3}\,i\,\text{Cos}[3\,c+d\,x]-\frac{1}{3}\,\text{Sin}[3\,c+d\,x]\right)+\right.$$
$$\left.\text{Sec}[c+d\,x]\left(\frac{15}{8}\,i\,\text{Cos}[3\,c+d\,x]+\frac{15}{8}\,\text{Sin}[3\,c+d\,x]\right)\right)(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}+\frac{1}{16\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}}\,15\,\text{Cos}[c+d\,x]^4$$
$$(e\,\text{Sec}[c+d\,x])^{3/2}\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\frac{1}{2}+\frac{i}{2}\right)(1+2\,\text{Cos}[2\,c])\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\,\sqrt{\frac{i-\text{Tan}\left[\frac{d\,x}{2}\right]}{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,i)\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,-\right.\right.\right.$$
$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\right.\right.\right.$$

$$\mathrm{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(-\mathrm{Sin}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Cos}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg)\Bigg]\,\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{Log}\Bigg[-\Bigg((2-2\,\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\mathrm{Sin}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+\mathrm{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Sin}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\right)\Bigg]\,\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-$$

$$\mathrm{Sin}\left[\frac{c}{2}\right]\Bigg((2+2\,\mathrm{i})\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Bigg[\Bigg((1+\mathrm{i})\left(2-2\,\mathrm{i}\,\mathrm{Cot}\left[\frac{c}{2}\right]\right)\mathrm{Sin}\left[\frac{c}{2}\right]^2\Bigg(\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+$$

$$\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(-\mathrm{Sin}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Cos}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg)\Bigg]\,\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Bigg[$$

$$-\Bigg((2-2\,\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\mathrm{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\mathrm{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/\left(\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]\left(-1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)+\mathrm{Sin}\left[\frac{c}{2}\right]\left(1+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Big)\Big)\Big]\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)-$$

$$\Bigg((1+\mathrm{i})\,\mathrm{Cos}[3\,c]^2\,\mathrm{Cos}[d\,x]\,\mathrm{Sec}[c+d\,x]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\Bigg((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg(-\frac{1}{\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Cos}[3\,c]\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}$$

$$\Bigg((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Cos}[3\,c]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)$$

$$(i \operatorname{Cos}[d x]-\operatorname{Sin}[d x])\left((1+i)\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}+\sqrt{2}\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}\right]\right.$$

$$\left.\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}+i\sqrt{2}\operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}\right]\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}\right)\Bigg) \Big/$$

$$\left(\sqrt{\operatorname{Cos}[d x]+i \operatorname{Sin}[d x]}\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}\right)-\frac{1}{\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}(1+i)\operatorname{Cos}[3 c]\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\operatorname{Cos}[d x]+i \operatorname{Sin}[d x]}$$

$$\left(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\operatorname{Sec}\left[\frac{d x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}+\frac{\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}\right]\operatorname{Sec}\left[\frac{d x}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}+\right.$$

$$\frac{i \operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}}\right]\operatorname{Sec}\left[\frac{d x}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}+\left(i\sqrt{2}\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}\right.$$

$$\left.\left.\left(\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}+\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i \operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d x}{2}\right]}}{4\sqrt{-1-i}\left(i-\operatorname{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)\right)\right) \Big/$$

$$\left(1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{dx}{2}\right]\right)}{i-\text{Tan}\left[\frac{dx}{2}\right]}\right)+\left(\sqrt{2}\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}\left(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}+\right.\right.$$

$$\left.\left.\left.\left.\left.\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)\right)\Big/\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{dx}{2}\right]\right)}{i-\text{Tan}\left[\frac{dx}{2}\right]}\right)\right)\right)\right)$$

$$(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}-\frac{1}{16\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}}\,15\,i\,\text{Cos}[c+d\,x]^4\,(e\,\text{Sec}[c+d\,x])^{3/2}\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}}\right.$$

$$\left(\frac{1}{2}+\frac{i}{2}\right)$$
$$\text{Cos}[c]$$
$$(-1+2\,\text{Cos}[2\,c])$$
$$\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)$$
$$\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$
$$\left(\text{Cos}\left[\frac{c}{2}\right]\left((-2+2\,i)\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}+\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((2+2\,i)\,\text{Cos}\left[\frac{dx}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{dx}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{dx}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}\right)\right)\right)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big]\sqrt{-1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}-$$

$$\sqrt{2}\,\text{Log}\Big[\Big((2-2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\Big(\text{Sin}\left[\frac{c}{2}\right]\Big(\sqrt{2}\sqrt{1+\text{Sin}[c]}-\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)+\text{Cos}\left[\frac{c}{2}\right]\Big(\sqrt{2}\sqrt{1+\text{Sin}[c]}+\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big]\sqrt{1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)+$$

$$\text{Sin}\left[\frac{c}{2}\right]\Big((2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{Log}\Big[\Big((2+2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\Big(\sqrt{2}\sqrt{-1+\text{Sin}[c]}+$$

$$\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\text{Cot}\left[\frac{c}{2}\right]\Big(-\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big]\sqrt{-1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\Big[\Big((2-2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\Big(\text{Sin}\left[\frac{c}{2}\right]\Big(\sqrt{2}\sqrt{1+\text{Sin}[c]}-\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)+\text{Cos}\left[\frac{c}{2}\right]\Big(\sqrt{2}\sqrt{1+\text{Sin}[c]}+\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big]\sqrt{1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)-$$

$$\left((1+i)\,\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[3\,c]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\left((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\right.\right.$$

$$\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,+$$

$$\left.\left.i\,\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Big/$$

$$\left(\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\left(-\frac{1}{\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{i}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[3\,c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right.\right.$$

$$\left((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\right.$$

$$\left.i\,\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[3\,c]\,(\mathrm{i}\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\,\Bigg((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\mathrm{i}\,\sqrt{2}$$

$$\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/\left(\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[3\,c]\,\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\,\Bigg(-\frac{\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\,\sqrt{2}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\,\sqrt{2}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\Bigg(\mathrm{i}\,\sqrt{2}\,\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\Bigg(\frac{\sqrt{-1+\mathrm{i}}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\,\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\left.\left.\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}{4\sqrt{-1-i}\left(i-\mathrm{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)\right)\Big/\left(1-\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{dx}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}\right)+$$

$$\left(\sqrt{2}\,\mathrm{Sin}[c]\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}\left(\frac{(-1)^{1/4}\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}+\frac{(-1)^{1/4}\mathrm{Sec}\left[\frac{dx}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{dx}{2}\right]}}{4\left(i-\mathrm{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)\right)\Big/$$

$$\left.\left.\left.\left.\left(1+\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{dx}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{dx}{2}\right]}\right)\right)\right)\right)\right)(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}$$

Problem 409: Result more than twice size of optimal antiderivative.

$$\int\sqrt{e\,\mathrm{Sec}[c+dx]}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}\,dx$$

Optimal (type 3, 411 leaves, 12 steps):

$$\frac{21\,i\,a^{5/2}\sqrt{e}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{e}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{\sqrt{a}\sqrt{e\,\mathrm{Sec}[c+dx]}}\right]}{4\sqrt{2}\,d}-\frac{21\,i\,a^{5/2}\sqrt{e}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{e}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{\sqrt{a}\sqrt{e\,\mathrm{Sec}[c+dx]}}\right]}{4\sqrt{2}\,d}-$$

$$\frac{21\,i\,a^{5/2}\sqrt{e}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{\sqrt{e\,\mathrm{Sec}[c+dx]}}+\mathrm{Cos}[c+dx]\,(a+i\,a\,\mathrm{Tan}[c+dx])\right]}{8\sqrt{2}\,d}+$$

$$\frac{21\,i\,a^{5/2}\sqrt{e}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{\sqrt{e\,\mathrm{Sec}[c+dx]}}+\mathrm{Cos}[c+dx]\,(a+i\,a\,\mathrm{Tan}[c+dx])\right]}{8\sqrt{2}\,d}+$$

$$\frac{7\,i\,a^2\sqrt{e\,\mathrm{Sec}[c+dx]}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{4\,d}+\frac{i\,a\sqrt{e\,\mathrm{Sec}[c+dx]}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}}{2\,d}$$

Result (type 3, 1521 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^2}\mathrm{Cos}[c+dx]^3\sqrt{e\,\mathrm{Sec}[c+dx]}$$

$$\left(\mathrm{Sec}[c+d x]\left(\frac{11}{4}\,\mathrm{i}\,\mathrm{Cos}[2 c]+\frac{11}{4}\,\mathrm{Sin}[2 c]\right)+\mathrm{Sec}[c+d x]^2\left(-\frac{1}{2}\,\mathrm{i}\,\mathrm{Cos}[3 c+d x]-\frac{1}{2}\,\mathrm{Sin}[3 c+d x]\right)\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d x])^{5/2}+$$

$$\left(\left(\frac{21}{4}+\frac{21\,\mathrm{i}}{4}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\right.$$

$$\mathrm{Cos}[c+d x]^2\sqrt{e\,\mathrm{Sec}[c+d x]}\left(\mathrm{Cos}\left[\frac{5 c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{5 c}{2}\right]\right)\left(\frac{21}{8}\,\mathrm{Cos}[2 c]\sqrt{\mathrm{Cos}[d x]+\mathrm{i}\,\mathrm{Sin}[d x]}-\frac{21}{8}\,\mathrm{i}\,\mathrm{Sin}[2 c]\sqrt{\mathrm{Cos}[d x]+\mathrm{i}\,\mathrm{Sin}[d x]}\right)$$

$$\left.\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d x])^{5/2}\right)\Bigg/\left(d\,(\mathrm{Cos}[d x]+\mathrm{i}\,\mathrm{Sin}[d x])^2\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d x}{2}\right]}\right.$$

$$\left(\left(\left(\frac{21}{16}+\frac{21\,\mathrm{i}}{16}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\right.\right.$$

$$\left.\mathrm{Sec}\left[\frac{d x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{5 c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{5 c}{2}\right]\right)\sqrt{\mathrm{Cos}[d x]+\mathrm{i}\,\mathrm{Sin}[d x]}\right)\Bigg/\left(\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}\right)+\frac{1}{\left(2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{21}{8}+\frac{21\,\mathrm{i}}{8}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d x}{2}\right]}}\right]\right)$$

$$\mathrm{Sec}\left[\frac{d x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{5 c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{5 c}{2}\right]\right)\sqrt{\mathrm{Cos}[d x]+\mathrm{i}\,\mathrm{Sin}[d x]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d x}{2}\right]}+$$

$$\Bigg(\left(\frac{21}{8}+\frac{21\,i}{8}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\left(\text{Cos}\left[\frac{5\,c}{2}\right]-i\,\text{Sin}\left[\frac{5\,c}{2}\right]\right)(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg/\left(\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\frac{21}{4}+\frac{21\,i}{4}\right)\left(\text{Cos}\left[\frac{5\,c}{2}\right]-i\,\text{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\Bigg(-\frac{i\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\,\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\,\sqrt{-1-i}\,\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\Bigg)\Bigg)\Bigg)$$

■ Problem 410: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}{\sqrt{e\,\text{Sec}[c+d\,x]}}\,dx$$

Optimal (type 3, 563 leaves, 13 steps) :

$$\frac{5\,i\,a^{7/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{5\,i\,a^{7/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{5\,i\,a^{7/2}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{2\,\sqrt{2}\,d\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$

$$\frac{5\,i\,a^{7/2}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{2\,\sqrt{2}\,d\,\sqrt{e}\,\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{10\,i\,a^2\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\,\sqrt{e\,\text{Sec}[c+d\,x]}}+\frac{i\,a\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{d\,\sqrt{e\,\text{Sec}[c+d\,x]}}$$

Result (type 3, 5863 leaves) :

$$\left(\text{Cos}[c+d\,x]^2\,(-8\,i\,\text{Cos}[2\,c]-8\,\text{Sin}[2\,c]+\text{Sec}[c+d\,x]\,(-i\,\text{Cos}[3\,c+d\,x]-\text{Sin}[3\,c+d\,x]))\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\right)\Big/$$

$$\left(d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\right)-\frac{1}{2\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}}$$

$$5\,\text{Cos}[c+d\,x]^2\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\frac{1}{2}+\frac{i}{2}\right)(1+2\,\text{Cos}[2\,c])\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\,\sqrt{\frac{i-\text{Tan}\left[\frac{d\,x}{2}\right]}{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,i)\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}-\right.\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+\right.\right.\right.$$

$$\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left.\left.\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(-\text{Sin}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)+\text{Cos}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\right)\right]\sqrt{-1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\left[-\left((2-2\,i)\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.\right.$$

$$\sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg) + \text{Cos}\left[\frac{c}{2}\right] \Bigg(\sqrt{2}\ \sqrt{1 + \text{Sin}[c]} + \sqrt{2}\ \sqrt{1 + \text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right] + 2\,\text{i}\ \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg)\Bigg)\Bigg) \Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right] - \text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right] + \text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right] \left(-1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right) + \text{Sin}\left[\frac{c}{2}\right] \left(1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\right)\Bigg)\Bigg] \sqrt{1 + \text{Sin}[c]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg) -$$

$$\text{Sin}\left[\frac{c}{2}\right] \Bigg((2 + 2\,\text{i}) \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]} + \sqrt{2}\ \text{Log}\Bigg[\Bigg((1 + \text{i}) \left(2 - 2\,\text{i}\ \text{Cot}\left[\frac{c}{2}\right]\right) \text{Sin}\left[\frac{c}{2}\right]^2 \Bigg(\sqrt{2}\ \sqrt{-1 + \text{Sin}[c]} +$$

$$\sqrt{2}\ \sqrt{-1 + \text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right] - 2 \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} +$$

$$\text{Cot}\left[\frac{c}{2}\right] \Bigg(-\sqrt{2}\ \sqrt{-1 + \text{Sin}[c]} + \sqrt{2}\ \sqrt{-1 + \text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right] + 2 \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg)\Bigg)\Bigg) \Big/ \left(\left(\text{Cos}\left[\frac{c}{2}\right] - \text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{c}{2}\right] + \text{Sin}\left[\frac{c}{2}\right]\right) \left(-\text{Sin}\left[\frac{c}{2}\right] \left(-1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right) + \text{Cos}\left[\frac{c}{2}\right] \left(1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg] \sqrt{-1 + \text{Sin}[c]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} + \sqrt{2}\ \text{Log}\Bigg[$$

$$-\Bigg((2 - 2\,\text{i}) \left(\text{Cos}\left[\frac{c}{2}\right] + \text{i}\ \text{Sin}\left[\frac{c}{2}\right]\right) \Bigg(\text{Sin}\left[\frac{c}{2}\right] \Bigg(\sqrt{2}\ \sqrt{1 + \text{Sin}[c]} - \sqrt{2}\ \sqrt{1 + \text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right] + 2\,\text{i}\ \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg) +$$

$$\text{Cos}\left[\frac{c}{2}\right] \Bigg(\sqrt{2}\ \sqrt{1 + \text{Sin}[c]} + \sqrt{2}\ \sqrt{1 + \text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right] + 2\,\text{i}\ \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg)\Bigg)\Bigg) \Big/ \left(\left(\text{Cos}\left[\frac{c}{2}\right] - \text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{c}{2}\right] + \text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right] \left(-1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right) + \text{Sin}\left[\frac{c}{2}\right] \left(1 + \text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg] \sqrt{1 + \text{Sin}[c]}\ \sqrt{\text{i} + \text{Tan}\left[\frac{d\,x}{2}\right]} \Bigg)\Bigg) -$$

$$\Bigg((1 + \text{i})\ \text{Cos}[3\,c]^2\ \text{Cos}[d\,x]\ \text{Sec}[c + d\,x] \left(\text{Cos}\left[\frac{c}{2}\right] - \text{i}\ \text{Sin}\left[\frac{c}{2}\right]\right) (\text{Cos}[d\,x] + \text{i}\ \text{Sin}[d\,x]) \Bigg((1 + \text{i}) \left(\text{Cos}\left[\frac{c}{2}\right] - \text{i}\ \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]} +$$

$$\sqrt{2}\ \text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\sqrt{2}\ \text{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg(-\frac{1}{\left(\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\text{Cos}[3\,c]\ \text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+\mathrm{i}\ \text{Sin}[d\,x]}$$

$$\Bigg((1+\mathrm{i})\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\ \text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{i}\sqrt{2}\ \text{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Cos}[3\,c]\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)$$

$$(\mathrm{i}\ \text{Cos}[d\,x]-\text{Sin}[d\,x])\Bigg((1+\mathrm{i})\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\ \text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\ \text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]$$

$$\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\mathrm{i}\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+\mathrm{i})\,\mathrm{Cos}[3\,c]\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}$$

$$\left(-\frac{\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\sqrt{2}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\sqrt{2}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\left(\mathrm{i}\sqrt{2}\,\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\left.\left.\left(\frac{\sqrt{-1+\mathrm{i}}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+\mathrm{i}}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-\mathrm{i}}\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\right)\Big/$$

$$\left(1-\frac{\mathrm{i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)+\left(\sqrt{2}\,\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\left(\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\right.\right.$$

$$\left.\left.\left.\left.\left.\left.\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\right/\left(1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\right)\right)$$

$$(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}+\frac{1}{2\,d\,\sqrt{e\,\text{Sec}[c+d\,x]}\;(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}}$$

5
i
Cos[
c +
d x]^2

$$\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\frac{1}{2}+\frac{i}{2}\right)\text{Cos}[c]\,(-1+2\,\text{Cos}[2\,c])\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right.$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]\left((-2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((2+2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\right/$$

$$\left.\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right]\sqrt{-1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\,-$$

$$\sqrt{2}\,\text{Log}\left[\left((2-2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.\right.$$

$$\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\;\Big)+\mathrm{Cos}\left[\frac{c}{2}\right]\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Big)\Big)\Big]\,\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\;\Big)+$$

$$\mathrm{Sin}\left[\frac{c}{2}\right]\Big((2+2\,\mathrm{i})\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{Log}\Big[\Big((2+2\,\mathrm{i})\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\,\Big(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{c}{2}\right]\Big)\,\mathrm{Sin}\left[\frac{c}{2}\right]^2\Big(\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+$$

$$\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]-2\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\mathrm{Cot}\left[\frac{c}{2}\right]\Big(-\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Big)\Big)\Big]\,\sqrt{-1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\mathrm{Log}\Big[\Big((2-2\,\mathrm{i})\,\mathrm{Cos}\left[\frac{d\,x}{2}\right]\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Sin}\left[\frac{c}{2}\right]\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}-\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\;\Big)+\mathrm{Cos}\left[\frac{c}{2}\right]\Big(\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}+\sqrt{2}\,\sqrt{1+\mathrm{Sin}[c]}\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Big)\Big)\Big)\Big/$$

$$\Big(\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\Big(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\Big)\Big)\Big]\,\sqrt{1+\mathrm{Sin}[c]}\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\;\Big)\Big)-$$

$$\Big((1+\mathrm{i})\,\mathrm{Cos}[d\,x]\,\mathrm{Sec}[c+d\,x]\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\mathrm{Sin}[3\,c]^2\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,\Big((1+\mathrm{i})\,\Big(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\Big)\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg(-\frac{1}{\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{i}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[3\,c]\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$

$$\Bigg((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)-$$

$$\Bigg(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[3\,c]\,(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\Bigg((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+\text{i}\sqrt{2}$$

$$\text{ArcTan}\left[\frac{\sqrt{-1+\text{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\text{i}}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/\left(\sqrt{\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x]}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}(1+\text{i})\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[3\,c]\sqrt{\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x]}\left(-\frac{\left(\frac{1}{4}+\frac{\text{i}}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\text{i}\,\text{ArcTan}\left[\frac{\sqrt{-1+\text{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\text{i}}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\left(\text{i}\sqrt{2}\,\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\left(\frac{\sqrt{-1+\text{i}}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-\text{i}}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.\right.$$

$$\left.\left.\frac{\sqrt{-1+\text{i}}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-\text{i}}\left(\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\Bigg/\left(1-\frac{\text{i}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\left(\sqrt{2}\ \mathrm{Sin}[c]\ \sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\ \left(\frac{(-1)^{1/4}\ \mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\ \left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\ \sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\ \mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\ \left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)\ \sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\ \left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\Bigg/$$

$$\left.\left.\left.\left.\left(1+\frac{i\ \left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\ \left(i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\right)\right)\ (a+i\ a\ \mathrm{Tan}[c+d\,x])^{5/2}$$

Problem 411: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\ a\ \mathrm{Tan}[c+d\,x])^{5/2}}{(e\ \mathrm{Sec}[c+d\,x])^{3/2}}\, dx$$

Optimal (type 3, 362 leaves, 11 steps):

$$-\frac{i\ \sqrt{2}\ a^{5/2}\ \mathrm{ArcTan}\left[1-\frac{\sqrt{2}\ \sqrt{e}\ \sqrt{a+i\ a\ \mathrm{Tan}[c+d\,x]}}{\sqrt{a}\ \sqrt{e\ \mathrm{Sec}[c+d\,x]}}\right]}{d\ e^{3/2}}+\frac{i\ \sqrt{2}\ a^{5/2}\ \mathrm{ArcTan}\left[1+\frac{\sqrt{2}\ \sqrt{e}\ \sqrt{a+i\ a\ \mathrm{Tan}[c+d\,x]}}{\sqrt{a}\ \sqrt{e\ \mathrm{Sec}[c+d\,x]}}\right]}{d\ e^{3/2}}+$$

$$\frac{i\ a^{5/2}\ \mathrm{Log}\left[a-\frac{\sqrt{2}\ \sqrt{a}\ \sqrt{e}\ \sqrt{a+i\ a\ \mathrm{Tan}[c+d\,x]}}{\sqrt{e\ \mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\ (a+i\ a\ \mathrm{Tan}[c+d\,x])\right]}{\sqrt{2}\ d\ e^{3/2}}-$$

$$\frac{i\ a^{5/2}\ \mathrm{Log}\left[a+\frac{\sqrt{2}\ \sqrt{a}\ \sqrt{e}\ \sqrt{a+i\ a\ \mathrm{Tan}[c+d\,x]}}{\sqrt{e\ \mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\ (a+i\ a\ \mathrm{Tan}[c+d\,x])\right]}{\sqrt{2}\ d\ e^{3/2}}-\frac{4\ i\ a\ (a+i\ a\ \mathrm{Tan}[c+d\,x])^{3/2}}{3\ d\ (e\ \mathrm{Sec}[c+d\,x])^{3/2}}$$

Result (type 3, 1571 leaves):

$$\frac{\mathrm{Cos}[c+d\,x]\ \left(\mathrm{Cos}[d\,x]\ \left(-\frac{4}{3}\ i\ \mathrm{Cos}[c]-\frac{4\ \mathrm{Sin}[c]}{3}\right)+\left(\frac{4\ \mathrm{Cos}[c]}{3}-\frac{4}{3}\ i\ \mathrm{Sin}[c]\right)\ \mathrm{Sin}[d\,x]\right)\ (a+i\ a\ \mathrm{Tan}[c+d\,x])^{5/2}}{d\ (e\ \mathrm{Sec}[c+d\,x])^{3/2}\ (\mathrm{Cos}[d\,x]+i\ \mathrm{Sin}[d\,x])^2}-$$

$$\left((1+i)\ \left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\ \left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)\ \sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\ \mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\ \left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)\ \sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\ \sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\ \mathrm{Sin}\left[\frac{c}{2}\right]\right)\ (\mathrm{Cos}[2\,c]-i\ \mathrm{Sin}[2\,c])\ \left(-\mathrm{Cos}[2\,c]\ \sqrt{\mathrm{Cos}[d\,x]+i\ \mathrm{Sin}[d\,x]}+i\ \mathrm{Sin}[2\,c]\ \sqrt{\mathrm{Cos}[d\,x]+i\ \mathrm{Sin}[d\,x]}\right)$$

$$\left.\sqrt{2\,\mathrm{Cos}[d\,x]+2\,i\,\mathrm{Sin}[d\,x]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/\left(d\,(e\,\mathrm{Sec}[c+d\,x])^{3/2}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^{5/2}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\left(-\left(\left(\frac{1}{4}+\frac{i}{4}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\right.\right.$$

$$\left.\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[2\,c]-i\,\mathrm{Sin}[2\,c])\sqrt{2\,\mathrm{Cos}[d\,x]+2\,i\,\mathrm{Sin}[d\,x]}\right)\Big/\left(\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{1}{4}+\frac{i}{4}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[2\,c]-i\,\mathrm{Sin}[2\,c])\sqrt{2\,\mathrm{Cos}[d\,x]+2\,i\,\mathrm{Sin}[d\,x]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[2\,c]-i\,\mathrm{Sin}[2\,c])\,(2\,i\,\mathrm{Cos}[d\,x]-2\,\mathrm{Sin}[d\,x])\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/$$

$$\left(\sqrt{2\,\mathrm{Cos}[d\,x]+2\,i\,\mathrm{Sin}[d\,x]}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{Cos}[2\,c]-i\,\mathrm{Sin}[2\,c])$$

$$\sqrt{2\,\mathrm{Cos}[d\,x]+2\,i\,\mathrm{Sin}[d\,x]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\left(-\frac{i\left(\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\left.\left.\left.\frac{\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right)\right)\right)$$

Problem 416: Result more than twice size of optimal antiderivative.

$$\int \frac{(e\,\mathrm{Sec}[c+d\,x])^{5/2}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 369 leaves, 11 steps):

$$\frac{i\,e^{5/2}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{\sqrt{2}\,\sqrt{a}\,d}-\frac{i\,e^{5/2}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{\sqrt{2}\,\sqrt{a}\,d}-$$

$$\frac{i\,e^{5/2}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{2\sqrt{2}\,\sqrt{a}\,d}+$$

$$\frac{i\,e^{5/2}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{2\sqrt{2}\,\sqrt{a}\,d}-\frac{i\,e^2\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{a\,d}$$

Result (type 3, 1531 leaves):

$$\frac{1}{d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

$$\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{5/2}\left(-i\,\text{Cos}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}+\text{Sin}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,+$$

$$\left((1+i)\left(\text{ArcTan}\Big[\frac{(-1)^{1/4}\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]-i\,\text{ArcTan}\Big[\frac{\sqrt{-1+i}\,\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]\right)\right.$$

$$\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{5/2}\left(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\right)(\text{Cos}[c]+i\,\text{Sin}[c])$$

$$\left.\left(\frac{1}{2}\text{Cos}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}+\frac{1}{2}i\,\text{Sin}[c]\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\right)\Bigg/\left(d\,\sqrt{2\,i-2\,\text{Tan}\Big[\frac{d\,x}{2}\Big]}\right.$$

$$\left(\left(\left(\frac{1}{4}+\frac{i}{4}\right)\left(\text{ArcTan}\Big[\frac{(-1)^{1/4}\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]-i\,\text{ArcTan}\Big[\frac{\sqrt{-1+i}\,\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]\right)\text{Sec}\Big[\frac{d\,x}{2}\Big]^2\right.\right.$$

$$\left.\left(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\right)(\text{Cos}[c]+i\,\text{Sin}[c])\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\right)\Bigg/\left(\sqrt{2\,i-2\,\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\right)+\frac{1}{\left(2\,i-2\,\text{Tan}[\frac{d\,x}{2}]\right)^{3/2}}$$

$$\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\Big[\frac{(-1)^{1/4}\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]-i\,\text{ArcTan}\Big[\frac{\sqrt{-1+i}\,\left(\text{Cos}[\frac{c}{2}]-i\,\text{Sin}[\frac{c}{2}]\right)\sqrt{i+\text{Tan}[\frac{d\,x}{2}]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}[\frac{d\,x}{2}]}}\Big]\right)$$

$$\text{Sec}\Big[\frac{d\,x}{2}\Big]^2\left(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\right)(\text{Cos}[c]+i\,\text{Sin}[c])\,\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\,+$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[c]+i\,\text{Sin}[c])\,(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}\right)\Big/\left(\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\sqrt{2\,i-2\,\text{Tan}\left[\frac{dx}{2}\right]}\right)+$$

$$\frac{1}{\sqrt{2\,i-2\,\text{Tan}\left[\frac{dx}{2}\right]}}(1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[c]+i\,\text{Sin}[c])\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}$$

$$\left(-\frac{i\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}{4\sqrt{-1-i}\left(i-\text{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{dx}{2}\right]\right)}{i-\text{Tan}\left[\frac{dx}{2}\right]}}+\right.$$

$$\left.\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{dx}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{dx}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{dx}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{dx}{2}\right]\right)}{i-\text{Tan}\left[\frac{dx}{2}\right]}}\right)\right)\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 417: Result more than twice size of optimal antiderivative.**

$$\int \frac{(e\,\text{Sec}[c+d\,x])^{3/2}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 483 leaves, 11 steps) :

$$-\frac{i\sqrt{2}\sqrt{a}\,e^{3/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{e}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+\frac{i\sqrt{2}\sqrt{a}\,e^{3/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{e}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$

$$\frac{i\sqrt{a}\,e^{3/2}\,\text{Log}\left[a-\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{i\sqrt{a}\,e^{3/2}\,\text{Log}\left[a+\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 1683 leaves) :

$$\left((1+i)\left(-i\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]+\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{3/2}\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])$$

$$\left.\left(\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}-i\,\text{Sec}[c+d\,x]\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\,\text{Sin}[d\,x]\right)\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/$$

$$\left(d\left(-i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\left(\left(\left(\frac{1}{4}+\frac{i}{4}\right)\left(-i\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]+\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.\right.\right.$$

$$\left.\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/\left(\left(-i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\left(-i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)^2}$$

$$\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]+\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,-$$

$$\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]+\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg/\left(\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)+$$

$$\Bigg(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(-\mathrm{i}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]+\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)(\mathrm{i}\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg/\left(\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\left(-\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)\right)+$$

$$\frac{1}{-\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}(1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\sqrt{2\,\mathrm{i}-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(\frac{\frac{\sqrt{-1+i}\ \text{Sec}\left[\frac{d x}{2}\right]^2 \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right)}{4 \sqrt{-1-i}\ \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\ \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{\sqrt{-1+i}\ \text{Sec}\left[\frac{d x}{2}\right]^2 \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4 \sqrt{-1-i}\ \left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}}{1-\frac{i \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right)^2 \left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}}-\right.$$

$$\left.\frac{i \left(\frac{(-1)^{1/4}\ \text{Sec}\left[\frac{d x}{2}\right]^2 \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right)}{4 \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\ \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{(-1)^{1/4}\ \text{Sec}\left[\frac{d x}{2}\right]^2 \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4 \left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}\right)}{1+\frac{i \left(\text{Cos}\left[\frac{c}{2}\right]-i\ \text{Sin}\left[\frac{c}{2}\right]\right)^2 \left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right)\Bigg)\Bigg) \sqrt{a+i\ a\ \text{Tan}[c+d x]}\ \Bigg)$$

- **Problem 423: Result more than twice size of optimal antiderivative.**

$$\int \frac{(e\ \text{Sec}[c+d x])^{7/2}}{(a+i\ a\ \text{Tan}[c+d x])^{3/2}}\, dx$$

Optimal (type 3, 529 leaves, 13 steps):

$$-\frac{i\ e^2\ (e\ \text{Sec}[c+d x])^{3/2}}{a\ d\ \sqrt{a+i\ a\ \text{Tan}[c+d x]}}-\frac{3\ i\ e^{7/2}\ \text{ArcTan}\left[1-\frac{\sqrt{2}\ \sqrt{e}\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}}{\sqrt{a}\ \sqrt{e\ \text{Sec}[c+d x]}}\right] \text{Sec}[c+d x]}{\sqrt{2}\ \sqrt{a}\ d\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}\ \sqrt{a+i\ a\ \text{Tan}[c+d x]}}+\frac{3\ i\ e^{7/2}\ \text{ArcTan}\left[1+\frac{\sqrt{2}\ \sqrt{e}\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}}{\sqrt{a}\ \sqrt{e\ \text{Sec}[c+d x]}}\right] \text{Sec}[c+d x]}{\sqrt{2}\ \sqrt{a}\ d\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}\ \sqrt{a+i\ a\ \text{Tan}[c+d x]}}+$$

$$\frac{3\ i\ e^{7/2}\ \text{Log}\left[a-\frac{\sqrt{2}\ \sqrt{a}\ \sqrt{e}\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}}{\sqrt{e\ \text{Sec}[c+d x]}}+\text{Cos}[c+d x]\ (a-i\ a\ \text{Tan}[c+d x])\right] \text{Sec}[c+d x]}{2 \sqrt{2}\ \sqrt{a}\ d\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}\ \sqrt{a+i\ a\ \text{Tan}[c+d x]}}-$$

$$\frac{3\ i\ e^{7/2}\ \text{Log}\left[a+\frac{\sqrt{2}\ \sqrt{a}\ \sqrt{e}\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}}{\sqrt{e\ \text{Sec}[c+d x]}}+\text{Cos}[c+d x]\ (a-i\ a\ \text{Tan}[c+d x])\right] \text{Sec}[c+d x]}{2 \sqrt{2}\ \sqrt{a}\ d\ \sqrt{a-i\ a\ \text{Tan}[c+d x]}\ \sqrt{a+i\ a\ \text{Tan}[c+d x]}}$$

Result (type 3, 5841 leaves):

$$\frac{1}{d\ (a+i\ a\ \text{Tan}[c+d x])^{3/2}}$$

$$\text{Cos}[c+d x]\ (e\ \text{Sec}[c+d x])^{7/2}\ (\text{Cos}[d x]+i\ \text{Sin}[d x])^{3/2} \left(-i\ \text{Cos}[c-d x]\ \sqrt{\text{Cos}[d x]+i\ \text{Sin}[d x]}+\sqrt{\text{Cos}[d x]+i\ \text{Sin}[d x]}\ \text{Sin}[c-d x]\right)+$$

$$\frac{1}{2\ d\ (a+i\ a\ \text{Tan}[c+d x])^{3/2}}\ 3\ \text{Cos}[c+d x]^2\ (e\ \text{Sec}[c+d x])^{7/2}\ (\text{Cos}[d x]+i\ \text{Sin}[d x])^{3/2}$$

$$\left(-\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\sqrt{\frac{i-\text{Tan}\left[\frac{d x}{2}\right]}{i+\text{Tan}\left[\frac{d x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2 i)\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}-\right.\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2 i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+\right.\right.\right.$$

$$\left.\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\Big/$$

$$\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(-\text{Sin}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d x}{2}\right]\right)+\text{Cos}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d x}{2}\right]\right)\right)\right)\right]$$

$$\sqrt{-1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+\sqrt{2}\,\text{Log}\left[-\left((2-2 i)\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\right.\right.$$

$$\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\sqrt{1+\text{Sin}[c]}-\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2 i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)+\text{Cos}\left[\frac{c}{2}\right]\right.$$

$$\left.\left.\left(\sqrt{2}\sqrt{1+\text{Sin}[c]}+\sqrt{2}\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2 i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left.\left.\left.\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d x}{2}\right]\right)+\text{Sin}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d x}{2}\right]\right)\right)\right)\right]\sqrt{1+\text{Sin}[c]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)-$$

$$\text{Sin}\left[\frac{c}{2}\right]\left((2+2 i)\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}+\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2 i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\right.\right.\right.\right.$$

$$\text{Tan}\left[\frac{d x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+\right.$$

$$2\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg)\Bigg/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(-\text{Sin}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)+\text{Cos}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg)\Bigg]\sqrt{-1+\text{Sin}[c]}\ \sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\ \text{Log}\Bigg[-\Bigg((2-2\,\text{i})$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]+\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\ \sqrt{1+\text{Sin}[c]}-\sqrt{2}\ \sqrt{1+\text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right]+2\,\text{i}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\right.$$

$$\left.\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\ \sqrt{1+\text{Sin}[c]}+\sqrt{2}\ \sqrt{1+\text{Sin}[c]}\ \text{Tan}\left[\frac{d\,x}{2}\right]+2\,\text{i}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\ \sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Bigg)\Bigg/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)+\text{Sin}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\Bigg)\Bigg)\Bigg]\sqrt{1+\text{Sin}[c]}\ \sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)-$$

$$\Bigg((1+\text{i})\ \text{Cos}[c]^2\ \text{Cos}[d\,x]\ \text{Sec}[c+d\,x]\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])\Bigg((1+\text{i})\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\ \text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\text{i}\sqrt{2}\ \text{ArcTan}\left[\frac{\sqrt{-1+\text{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\text{i}}\ \sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{i - \text{Tan}\Big[\frac{d\,x}{2}\Big]}\;\Bigg(-\frac{1}{\big(i - \text{Tan}\big[\frac{d\,x}{2}\big]\big)^{3/2}}\Big(\frac{1}{4}+\frac{i}{4}\Big)\,\text{Cos}[c]\,\text{Sec}\Big[\frac{d\,x}{2}\Big]^2\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$

$$\Bigg((1+i)\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}+\sqrt{2}\,\text{ArcTan}\Bigg[\frac{(-1)^{1/4}\big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\big)\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\;+$$

$$i\sqrt{2}\,\text{ArcTan}\Bigg[\frac{\sqrt{-1+i}\,\big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\big)\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\Bigg)-\Bigg(\Big(\frac{1}{2}+\frac{i}{2}\Big)\,\text{Cos}[c]\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)$$

$$(i\,\text{Cos}[d\,x]-\text{Sin}[d\,x])\Bigg((1+i)\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}+\sqrt{2}\,\text{ArcTan}\Bigg[\frac{(-1)^{1/4}\big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\big)\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]$$

$$\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}+i\sqrt{2}\,\text{ArcTan}\Bigg[\frac{\sqrt{-1+i}\,\big(\text{Cos}\big[\frac{c}{2}\big]-i\,\text{Sin}\big[\frac{c}{2}\big]\big)\sqrt{i+\text{Tan}\big[\frac{d\,x}{2}\big]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\Bigg]\,\text{Sin}[c]\,\sqrt{i+\text{Tan}\Big[\frac{d\,x}{2}\Big]}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\;\sqrt{i-\text{Tan}\Big[\frac{d\,x}{2}\Big]}\Bigg)-\frac{1}{\sqrt{i-\text{Tan}\big[\frac{d\,x}{2}\big]}}\,(1+i)\,\text{Cos}[c]\,\Big(\text{Cos}\Big[\frac{c}{2}\Big]-i\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}$$

$$\Bigg(-\frac{\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\sqrt{2}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\mathrm{Sin}[c]}{2\sqrt{2}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\Bigg(\mathrm{i}\sqrt{2}\,\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(\frac{\sqrt{-1+\mathrm{i}}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-\mathrm{i}}\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+\mathrm{i}}\,\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-\mathrm{i}}\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\Bigg)\Big/$$

$$\left(1-\frac{\mathrm{i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)+\Bigg(\sqrt{2}\,\mathrm{Sin}[c]\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\,\Bigg(\frac{(-1)^{1/4}\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{(-1)^{1/4}\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\Bigg)\Bigg)\Big/\left(1+\frac{\mathrm{i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)^2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)}{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg)\Bigg)+$$

$$\frac{1}{2\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{3/2}}\,3\,\mathrm{i}\,\mathrm{Cos}[c+d\,x]^2\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^{3/2}$$

$$\left(\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right.$$

$$\left(\frac{1}{2}+\frac{i}{2}\right)$$

$$\text{Cos}[c]$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)$$

$$\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2 i)\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\right.\right. -$$

$$\sqrt{2}\,\text{Log}\left[\left((2+2 i)\,\text{Cos}\left[\frac{d x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\right/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Bigg]\sqrt{-1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\left[\left((2-2 i)\,\text{Cos}\left[\frac{d x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2 i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)+\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d x}{2}\right]+2 i\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right)\right)\right)\right/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Bigg]\sqrt{1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\Bigg) -$$

$$\text{Sin}\left[\frac{c}{2}\right]\left((2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{Log}\left[\left((2+2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\right.\right.\right.\right.$$

$$\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big]\sqrt{-1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\left[\left((2-2\,i)\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/$$

$$\left.\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right]\sqrt{1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)-$$

$$\left((1+i)\,\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\left((1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\right.\right.$$

$$\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\left.\left.\mathrm{i}\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Big/$$

$$\left(\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right.\left(-\frac{1}{\left(\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{\mathrm{i}}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[c]\,\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\right.$$

$$\left((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\right.$$

$$\left.\mathrm{i}\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\left(\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[c]\right.$$

$$(\mathrm{i}\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\left((1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right.$$

$$\left.\left.\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\mathrm{i}\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+\mathrm{i}}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\mathrm{i}}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{\mathrm{i}+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\Big/$$

$$\left(\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}\,\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{\mathrm{i}-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+\mathrm{i})\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[c]\,\sqrt{\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x]}$$

$$\left(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\operatorname{Sec}\left[\frac{dx}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}}+\frac{\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}}\right]\operatorname{Sec}\left[\frac{dx}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}+\right.$$

$$\frac{i\operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}}\right]\operatorname{Sec}\left[\frac{dx}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}+\left(i\sqrt{2}\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}\right.$$

$$\left.\left.\left(\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{dx}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}+\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{dx}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}{4\sqrt{-1-i}\left(i-\operatorname{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)\right)\right/$$

$$\left(1-\frac{i\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\operatorname{Tan}\left[\frac{dx}{2}\right]\right)}{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}\right)+\left(\sqrt{2}\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}\left(\frac{(-1)^{1/4}\operatorname{Sec}\left[\frac{dx}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}+\right.\right.$$

$$\left.\left.\left.\left.\frac{(-1)^{1/4}\operatorname{Sec}\left[\frac{dx}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{dx}{2}\right]}}{4\left(i-\operatorname{Tan}\left[\frac{dx}{2}\right]\right)^{3/2}}\right)\right)\right/\left(1+\frac{i\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\operatorname{Tan}\left[\frac{dx}{2}\right]\right)}{i-\operatorname{Tan}\left[\frac{dx}{2}\right]}\right)\right)\right)\right)\right)$$

- **Problem 424: Result more than twice size of optimal antiderivative.**

$$\int\frac{(e\operatorname{Sec}[c+dx])^{5/2}}{(a+i\,a\operatorname{Tan}[c+dx])^{3/2}}\,dx$$

Optimal (type 3, 365 leaves, 11 steps) :

$$-\frac{i \sqrt{2}\, e^{5/2} \text{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e} \sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \text{Sec}[c+d x]}}\right]}{a^{3/2} d}+\frac{i \sqrt{2}\, e^{5/2} \text{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e} \sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \text{Sec}[c+d x]}}\right]}{a^{3/2} d}+$$
$$\frac{i e^{5/2} \text{Log}\left[a-\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{e \text{Sec}[c+d x]}}+\text{Cos}[c+d x] (a+i a \text{Tan}[c+d x])\right]}{\sqrt{2}\, a^{3/2} d}-$$
$$\frac{i e^{5/2} \text{Log}\left[a+\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{e \text{Sec}[c+d x]}}+\text{Cos}[c+d x] (a+i a \text{Tan}[c+d x])\right]}{\sqrt{2}\, a^{3/2} d}+\frac{4 i e^2 \sqrt{e \text{Sec}[c+d x]}}{a d \sqrt{a+i a \text{Tan}[c+d x]}}$$

Result (type 3, 1563 leaves) :

$$\frac{1}{d (a+i a \text{Tan}[c+d x])^{3/2}}$$
$$\text{Cos}[c+d x] (e \text{Sec}[c+d x])^{5/2} (\text{Cos}[d x]+i \text{Sin}[d x])^2 (\text{Cos}[d x] (4 i \text{Cos}[c]-4 \text{Sin}[c])+(4 \text{Cos}[c]+4 i \text{Sin}[c]) \text{Sin}[d x])-$$
$$\left((1+i) \left(\text{ArcTan}\left[\frac{(-1)^{1/4} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]-i \text{ArcTan}\left[\frac{\sqrt{-1+i} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i} \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right) (e \text{Sec}[c+d x])^{5/2}\right.$$
$$\left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) (\text{Cos}[2 c]+i \text{Sin}[2 c]) \left(-\text{Cos}[2 c] \sqrt{\text{Cos}[d x]+i \text{Sin}[d x]}-i \text{Sin}[2 c] \sqrt{\text{Cos}[d x]+i \text{Sin}[d x]}\right)$$
$$\left.(\text{Cos}[d x]+i \text{Sin}[d x])^{3/2} \sqrt{2 \text{Cos}[d x]+2 i \text{Sin}[d x]} \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}\right) \Big/ \left(d \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\right.$$
$$\left(-\left(\left(\frac{1}{4}+\frac{i}{4}\right) \left(\text{ArcTan}\left[\frac{(-1)^{1/4} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]-i \text{ArcTan}\left[\frac{\sqrt{-1+i} \left(\text{Cos}\left[\frac{c}{2}\right]-i \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i} \sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right) \text{Sec}\left[\frac{d x}{2}\right]^2\right.\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[2\,c]+i\,\text{Sin}[2\,c])\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\right)\Big/\left(\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{1}{4}+\frac{i}{4}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[2\,c]+i\,\text{Sin}[2\,c])\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}-$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[2\,c]+i\,\text{Sin}[2\,c])(2\,i\,\text{Cos}[d\,x]-2\,\text{Sin}[d\,x])\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Big/$$

$$\left(\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[2\,c]+i\,\text{Sin}[2\,c])$$

$$\sqrt{2\,\text{Cos}[d\,x]+2\,i\,\text{Sin}[d\,x]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\left(-\frac{i\left(\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\left(\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right)\Bigg)\,(a+i\,a\,\text{Tan}[c+d x])^{3/2}\Bigg)$$

- **Problem 430: Result more than twice size of optimal antiderivative.**

$$\int \frac{(e\,\text{Sec}[c+d x])^{9/2}}{(a+i\,a\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 411 leaves, 12 steps):

$$-\frac{5\,i\,e^{9/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d x]}}\right]}{\sqrt{2}\,a^{5/2}\,d}+\frac{5\,i\,e^{9/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d x]}}{\sqrt{a}\,\sqrt{e\,\text{Sec}[c+d x]}}\right]}{\sqrt{2}\,a^{5/2}\,d}+$$
$$\frac{5\,i\,e^{9/2}\,\text{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d x]}}{\sqrt{e\,\text{Sec}[c+d x]}}+\text{Cos}[c+d x]\,(a+i\,a\,\text{Tan}[c+d x])\right]}{2\sqrt{2}\,a^{5/2}\,d}-$$
$$\frac{5\,i\,e^{9/2}\,\text{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\text{Tan}[c+d x]}}{\sqrt{e\,\text{Sec}[c+d x]}}+\text{Cos}[c+d x]\,(a+i\,a\,\text{Tan}[c+d x])\right]}{2\sqrt{2}\,a^{5/2}\,d}+$$
$$\frac{4\,i\,e^2\,(e\,\text{Sec}[c+d x])^{5/2}}{a\,d\,(a+i\,a\,\text{Tan}[c+d x])^{3/2}}+\frac{5\,i\,e^4\,\sqrt{e\,\text{Sec}[c+d x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d x]}}{a^3\,d}$$

Result (type 3, 1511 leaves):

$$\frac{1}{d\,(a+i\,a\,\text{Tan}[c+d x])^{5/2}}\text{Cos}[c+d x]^2\,(e\,\text{Sec}[c+d x])^{9/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3$$
$$(\text{Cos}[d x]\,(8\,i\,\text{Cos}[2 c]-8\,\text{Sin}[2 c])+\text{Sec}[c+d x]\,(i\,\text{Cos}[3 c]-\text{Sin}[3 c])+(8\,\text{Cos}[2 c]+8\,i\,\text{Sin}[2 c])\,\text{Sin}[d x])-$$
$$\left((5+5\,i)\left(\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]-i\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\text{Tan}\left[\frac{d x}{2}\right]}}\right]\right)\text{Cos}[c+d x]\right.$$
$$(e\,\text{Sec}[c+d x])^{9/2}\left(\text{Cos}\left[\frac{5 c}{2}\right]+i\,\text{Sin}\left[\frac{5 c}{2}\right]\right)\left(-\frac{5}{2}\,\text{Cos}[3 c]\,\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}-\frac{5}{2}\,i\,\text{Sin}[3 c]\,\sqrt{\text{Cos}[d x]+i\,\text{Sin}[d x]}\right)$$

$$\left.(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg/\left(d\sqrt{2\,i-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right.$$

$$\left(-\left(\left(\frac{5}{4}+\frac{5\,i}{4}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.\right.$$

$$\left.\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{5\,c}{2}\right]+i\,\mathrm{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\right)\Bigg/\left(\sqrt{2\,i-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\left(2\,i-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}$$

$$\left(\frac{5}{2}+\frac{5\,i}{2}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)$$

$$\mathrm{Sec}\left[\frac{d\,x}{2}\right]^2\left(\mathrm{Cos}\left[\frac{5\,c}{2}\right]+i\,\mathrm{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}-$$

$$\left(\left(\frac{5}{2}+\frac{5\,i}{2}\right)\left(\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]-i\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right)\right.$$

$$\left.\left(\mathrm{Cos}\left[\frac{5\,c}{2}\right]+i\,\mathrm{Sin}\left[\frac{5\,c}{2}\right]\right)(i\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg/\left(\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\sqrt{2\,i-2\,\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\frac{1}{\sqrt{2\,i-2\,\text{Tan}\left[\frac{d\,x}{2}\right]}}(5+5\,i)\left(\text{Cos}\left[\frac{5\,c}{2}\right]+i\,\text{Sin}\left[\frac{5\,c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+i\,\text{Sin}[d\,x]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\left(-\frac{i\left(\frac{\sqrt{-1+i}\;\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\;\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\;\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\;\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)}{1-\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\left.\frac{\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\;\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}}{1+\frac{i\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right)\Bigg)\Bigg)\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\Bigg)$$

Problem 431: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Sec}[c+d\,x])^{7/2}}{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 527 leaves, 12 steps):

$$\frac{4\,i\,e^2\,(e\,\text{Sec}[c+d\,x])^{3/2}}{3\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}+\frac{i\sqrt{2}\;e^{7/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\;\sqrt{e}\;\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\;\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{a^{3/2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\;\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{i\sqrt{2}\;e^{7/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\;\sqrt{e}\;\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\;\sqrt{e\,\text{Sec}[c+d\,x]}}\right]\text{Sec}[c+d\,x]}{a^{3/2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\;\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-$$

$$\frac{i\,e^{7/2}\,\text{Log}\left[a-\frac{\sqrt{2}\;\sqrt{a}\;\sqrt{e}\;\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\;a^{3/2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\;\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$

$$\frac{i\,e^{7/2}\,\text{Log}\left[a+\frac{\sqrt{2}\;\sqrt{a}\;\sqrt{e}\;\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]}{\sqrt{2}\;a^{3/2}\,d\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\;\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 5863 leaves):

$$\frac{1}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}$$

$$\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{7/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\left(\text{Cos}[2\,d\,x]\left(\frac{4}{3}\,i\,\text{Cos}[c]-\frac{4\,\text{Sin}[c]}{3}\right)+\left(\frac{4\,\text{Cos}[c]}{3}+\frac{4}{3}\,i\,\text{Sin}[c]\right)\text{Sin}[2\,d\,x]\right)+$$

$$\frac{1}{d\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,(1+i)\,\text{Cos}[c]\,\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{7/2}$$

$$\left(\text{Cos}\left[\frac{c}{2}\right]-i\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}\sqrt{\frac{i-\text{Tan}\left[\frac{d\,x}{2}\right]}{i+\text{Tan}\left[\frac{d\,x}{2}\right]}}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}-\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+\right.\right.\right.$$

$$\left.\left.\left.\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\right)\Big/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(-\text{Sin}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)+\text{Cos}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\right)\Big]\sqrt{-1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\text{Log}\left[-\left((2-2\,i)\left(\text{Cos}\left[\frac{c}{2}\right]+i\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\right.\right.\right.$$

$$\left.\left.\left.\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$

$$\left.\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]\left(-1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)+\text{Sin}\left[\frac{c}{2}\right]\left(1+\text{Tan}\left[\frac{d\,x}{2}\right]\right)\right)\right)\Big]\sqrt{1+\text{Sin}[c]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-\text{Sin}\left[\frac{c}{2}\right]$$

$$\left((2+2\,i)\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{Log}\left[\left((1+i)\left(2-2\,i\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.\right.$$

$$\left.\left.\left.\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{i-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/$$

$$\left(\left(\cos\left[\frac{c}{2}\right]-\sin\left[\frac{c}{2}\right]\right)\left(\cos\left[\frac{c}{2}\right]+\sin\left[\frac{c}{2}\right]\right)\left(-\sin\left[\frac{c}{2}\right]\left(-1+\tan\left[\frac{d\,x}{2}\right]\right)+\cos\left[\frac{c}{2}\right]\left(1+\tan\left[\frac{d\,x}{2}\right]\right)\right)\right)\Big]\sqrt{-1+\sin[c]}\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}+\sqrt{2}$$

$$\text{Log}\Big[-\Bigg((2-2\,i)\left(\cos\left[\frac{c}{2}\right]+i\sin\left[\frac{c}{2}\right]\right)\Bigg(\sin\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\sin[c]}-\sqrt{2}\,\sqrt{1+\sin[c]}\,\tan\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\tan\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}\right)+$$

$$\cos\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\sin[c]}+\sqrt{2}\,\sqrt{1+\sin[c]}\,\tan\left[\frac{d\,x}{2}\right]+2\,i\sqrt{i-\tan\left[\frac{d\,x}{2}\right]}\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Big/$$

$$\left(\left(\cos\left[\frac{c}{2}\right]-\sin\left[\frac{c}{2}\right]\right)\left(\cos\left[\frac{c}{2}\right]+\sin\left[\frac{c}{2}\right]\right)\left(\cos\left[\frac{c}{2}\right]\left(-1+\tan\left[\frac{d\,x}{2}\right]\right)+\sin\left[\frac{c}{2}\right]\left(1+\tan\left[\frac{d\,x}{2}\right]\right)\right)\right)\Big]\sqrt{1+\sin[c]}\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)+$$

$$\Bigg((1+i)\cos[2\,c]^2\cos[d\,x]\,(e\,\text{Sec}[c+d\,x])^{7/2}\left(\cos\left[\frac{c}{2}\right]-i\sin\left[\frac{c}{2}\right]\right)(\cos[d\,x]+i\sin[d\,x])^{7/2}$$

$$\Bigg((1+i)\left(\cos\left[\frac{c}{2}\right]-i\sin\left[\frac{c}{2}\right]\right)\sqrt{i-\tan\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\cos\left[\frac{c}{2}\right]-i\sin\left[\frac{c}{2}\right]\right)\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\tan\left[\frac{d\,x}{2}\right]}}\right]\sin[c]\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}+$$

$$i\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+i}\left(\cos\left[\frac{c}{2}\right]-i\sin\left[\frac{c}{2}\right]\right)\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\tan\left[\frac{d\,x}{2}\right]}}\right]\sin[c]\,\sqrt{i+\tan\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Big/$$

$$\left(d \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]} \left(-\frac{1}{\left(i - \text{Tan}\left[\frac{d x}{2}\right]\right)^{3/2}} \left(\frac{1}{4} + \frac{i}{4}\right) \text{Cos}[2 c] \, \text{Sec}\left[\frac{d x}{2}\right]^2 \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{\text{Cos}[d x] + i \, \text{Sin}[d x]}\right.\right.$$

$$\left((1 + i) \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]} + \sqrt{2} \, \text{ArcTan}\left[\frac{(-1)^{1/4} \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]}}\right] \text{Sin}[c] \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]} + \right.$$

$$\left. i \sqrt{2} \, \text{ArcTan}\left[\frac{\sqrt{-1 + i} \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1 - i} \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]}}\right] \text{Sin}[c] \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}\right) -$$

$$\left(\left(\frac{1}{2} + \frac{i}{2}\right) \text{Cos}[2 c] \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) (i \, \text{Cos}[d x] - \text{Sin}[d x]) \left((1 + i) \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]} + \right.\right.$$

$$\sqrt{2} \, \text{ArcTan}\left[\frac{(-1)^{1/4} \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]}}\right] \text{Sin}[c] \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]} +$$

$$\left.\left. i \sqrt{2} \, \text{ArcTan}\left[\frac{\sqrt{-1 + i} \left(\text{Cos}\left[\frac{c}{2}\right] - i \, \text{Sin}\left[\frac{c}{2}\right]\right) \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}}{\sqrt{-1 - i} \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]}}\right] \text{Sin}[c] \sqrt{i + \text{Tan}\left[\frac{d x}{2}\right]}\right)\right) \Big/ \left(\sqrt{\text{Cos}[d x] + i \, \text{Sin}[d x]} \sqrt{i - \text{Tan}\left[\frac{d x}{2}\right]}\right) -$$

$$\frac{1}{\sqrt{\text{i} - \text{Tan}\left[\frac{d\,x}{2}\right]}}\,(1+\text{i})\,\text{Cos}[2\,c]\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x]}\left(-\frac{\left(\frac{1}{4}+\frac{\text{i}}{4}\right)\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}+\right.$$

$$\frac{\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\text{i}\,\text{ArcTan}\left[\frac{\sqrt{-1+\text{i}}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\text{i}}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sec}\left[\frac{d\,x}{2}\right]^2\text{Sin}[c]}{2\sqrt{2}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\left(\text{i}\sqrt{2}\,\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\left(\frac{\sqrt{-1+\text{i}}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-\text{i}}\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+\text{i}}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-\text{i}}\left(\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\Big/$$

$$\left(1-\frac{\text{i}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+$$

$$\left(\sqrt{2}\,\text{Sin}[c]\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\left(\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{(-1)^{1/4}\,\text{Sec}\left[\frac{d\,x}{2}\right]^2\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\right)\right)\Big/$$

$$\left.\left(1+\frac{\text{i}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)^2\left(\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]\right)}{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)(a+\text{i}\,a\,\text{Tan}[c+d\,x])^{5/2}-$$

$$\frac{1}{d\,(a+\text{i}\,a\,\text{Tan}[c+d\,x])^{5/2}}\,\text{i}\,\text{Cos}[c+d\,x]\,(e\,\text{Sec}[c+d\,x])^{7/2}\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])^{5/2}$$

$$\left(\frac{1}{\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right.$$

$$\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Cos}[2\,c]\left(\text{Cos}\left[\frac{c}{2}\right]-\mathrm{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x]}\left(\text{Cos}\left[\frac{c}{2}\right]\left((2-2\,\mathrm{i})\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}-\right.\right.$$

$$\sqrt{2}\,\text{Log}\left[\left((2+2\,\mathrm{i})\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-\mathrm{i}\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.$$

$$\left.\left.\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/$$

$$\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right]\sqrt{-1+\text{Sin}[c]}\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\sqrt{2}\,\text{Log}\left[\left((2-2\,\mathrm{i})\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+\mathrm{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Sin}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\right.\right.\right.\right.$$

$$\left.\left.\left.\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)+\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\mathrm{i}\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right)\Big/$$

$$\left.\left.\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right]\sqrt{1+\text{Sin}[c]}\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)-$$

$$\text{Sin}\left[\frac{c}{2}\right]\left((2+2\,\mathrm{i})\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\text{Log}\left[\left((2+2\,\mathrm{i})\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(1-\mathrm{i}\,\text{Cot}\left[\frac{c}{2}\right]\right)\text{Sin}\left[\frac{c}{2}\right]^2\left(\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\right.\right.\right.\right.$$

$$\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]-2\sqrt{\mathrm{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{\mathrm{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}+$$

$$\text{Cot}\left[\frac{c}{2}\right]\left(-\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{-1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Bigg]\,\sqrt{-1+\text{Sin}[c]}\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\;+$$

$$\sqrt{2}\,\text{Log}\Bigg[\Bigg((2-2\,\text{i})\,\text{Cos}\left[\frac{d\,x}{2}\right]\left(\text{Cos}\left[\frac{c}{2}\right]+\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\Bigg(\text{Sin}\left[\frac{c}{2}\right]\Bigg(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}-\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\text{i}\,\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)+\text{Cos}\left[\frac{c}{2}\right]\left(\sqrt{2}\,\sqrt{1+\text{Sin}[c]}+\sqrt{2}\,\sqrt{1+\text{Sin}[c]}\,\text{Tan}\left[\frac{d\,x}{2}\right]+2\,\text{i}\,\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Bigg]\,\sqrt{1+\text{Sin}[c]}\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)-$$

$$\Bigg((1+\text{i})\,\text{Cos}[d\,x]\,\text{Sec}[c+d\,x]\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\text{Sin}[2\,c]^2\,(\text{Cos}[d\,x]+\text{i}\,\text{Sin}[d\,x])\Bigg((1+\text{i})\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}\;+$$

$$\sqrt{2}\,\text{ArcTan}\left[\frac{(-1)^{1/4}\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\;+$$

$$\text{i}\,\sqrt{2}\,\text{ArcTan}\left[\frac{\sqrt{-1+\text{i}}\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{i}\,\text{Sin}\left[\frac{c}{2}\right]\right)\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-\text{i}}\,\sqrt{\text{i}-\text{Tan}\left[\frac{d\,x}{2}\right]}}\right]\text{Sin}[c]\,\sqrt{\text{i}+\text{Tan}\left[\frac{d\,x}{2}\right]}\Bigg)\Bigg)\Bigg/$$

$$\left(\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\;\left(-\frac{1}{\left(i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\left(\frac{1}{4}+\frac{i}{4}\right)\mathrm{Sec}\left[\frac{d\,x}{2}\right]^{2}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]\,\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\right.\right.$$

$$\left((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right.+$$

$$\left.i\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\left(\left(\frac{1}{2}+\frac{i}{2}\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]\right.$$

$$(i\,\mathrm{Cos}[d\,x]-\mathrm{Sin}[d\,x])\left((1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+\sqrt{2}\,\mathrm{ArcTan}\left[\frac{(-1)^{1/4}\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\right.$$

$$\left.\left.\left.\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}+i\,\sqrt{2}\,\mathrm{ArcTan}\left[\frac{\sqrt{-1+i}\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}\right]\mathrm{Sin}[c]\,\sqrt{i+\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)\right)\right/$$

$$\left(\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\,\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}\right)-\frac{1}{\sqrt{i-\mathrm{Tan}\left[\frac{d\,x}{2}\right]}}(1+i)\left(\mathrm{Cos}\left[\frac{c}{2}\right]-i\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\mathrm{Sin}[2\,c]\,\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}$$

$$\Bigg(-\frac{\left(\frac{1}{4}+\frac{i}{4}\right)\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\operatorname{ArcTan}\left[\frac{(-1)^{1/4}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{i\operatorname{ArcTan}\left[\frac{\sqrt{-1+i}\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}\right]\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\operatorname{Sin}[c]}{2\sqrt{2}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+\Bigg(i\sqrt{2}\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}$$

$$\Bigg(\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{-1-i}\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+\frac{\sqrt{-1+i}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{4\sqrt{-1-i}\left(i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\Bigg)\Bigg)\Bigg/$$

$$\left(1-\frac{i\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\right)+\Bigg(\sqrt{2}\operatorname{Sin}[c]\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\Bigg(\frac{(-1)^{1/4}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)}{4\sqrt{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}+$$

$$\frac{(-1)^{1/4}\operatorname{Sec}\left[\frac{d\,x}{2}\right]^2\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)\sqrt{i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]}}{4\left(i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)^{3/2}}\Bigg)\Bigg)\Bigg/\left(1+\frac{i\left(\operatorname{Cos}\left[\frac{c}{2}\right]-i\operatorname{Sin}\left[\frac{c}{2}\right]\right)^2\left(i+\operatorname{Tan}\left[\frac{d\,x}{2}\right]\right)}{i-\operatorname{Tan}\left[\frac{d\,x}{2}\right]}\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 443: Result unnecessarily involves higher level functions.**

$$\int\frac{(d\operatorname{Sec}[e+f\,x])^{2/3}}{(a+i\,a\operatorname{Tan}[e+f\,x])^{7/3}}\,dx$$

Optimal (type 3, 437 leaves, 9 steps) :

$$\frac{i\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{4\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{7/3}}-\frac{5\,x\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{72\times 2^{2/3}\,a^{5/3}\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}+$$
$$\frac{5\,i\,\mathrm{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{12\times 2^{2/3}\,\sqrt{3}\,a^{5/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}-\frac{5\,i\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{72\times 2^{2/3}\,a^{5/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}-$$
$$\frac{5\,i\,\mathrm{Log}\left[2^{1/3}\,a^{1/3}-(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{24\times 2^{2/3}\,a^{5/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}+\frac{5\,i\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{24\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,\left(a^2+i\,a^2\,\mathrm{Tan}[e+f\,x]\right)}$$

Result (type 5, 138 leaves) :

$$-\left(i\,\mathrm{Sec}[e+f\,x]^2\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}\right.$$
$$\left.\left(11+11\,\mathrm{Cos}[2\,(e+f\,x)]+10\,e^{2\,i\,(e+f\,x)}\,\left(1+e^{-2\,i\,(e+f\,x)}\right)^{1/3}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-e^{-2\,i\,(e+f\,x)}\right]+5\,i\,\mathrm{Sin}[2\,(e+f\,x)]\right)\right)\Big/$$
$$\left(48\,a^2\,f\,(-i+\mathrm{Tan}[e+f\,x])^2\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\right)$$

Problem 444: Result unnecessarily involves higher level functions.

$$\int \frac{(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{4/3}}\,dx$$

Optimal (type 3, 378 leaves, 8 steps) :

$$\frac{i\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{2\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{4/3}}-\frac{x\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{6\times 2^{2/3}\,a^{2/3}\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}+$$
$$\frac{i\,\mathrm{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{2^{2/3}\,\sqrt{3}\,a^{2/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}-$$
$$\frac{i\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{6\times 2^{2/3}\,a^{2/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}-\frac{i\,\mathrm{Log}\left[2^{1/3}\,a^{1/3}-(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{2\times 2^{2/3}\,a^{2/3}\,f\,(a-i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}$$

Result (type 5, 118 leaves) :

$$\left(i\,e^{-2\,i\,(e+f\,x)}\,\left(1+e^{2\,i\,(e+f\,x)}+2\,e^{2\,i\,(e+f\,x)}\,\left(1+e^{-2\,i\,(e+f\,x)}\right)^{1/3}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-e^{-2\,i\,(e+f\,x)}\right]\right)\,(d\,\mathrm{Sec}[e+f\,x])^{2/3}\right)\Big/$$
$$\left(4\,a\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}\right)$$

Problem 445: Result unnecessarily involves higher level functions.

$$\int \frac{(d\,\mathrm{Sec}[e+f\,x])^{2/3}}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{1/3}}\,dx$$

Optimal (type 3, 340 leaves, 6 steps) :

$$-\frac{a^{1/3}\,x\,(d\,\text{Sec}[e+f\,x])^{2/3}}{2\times 2^{2/3}\,(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^{1/3}}+\frac{i\,\sqrt{3}\,a^{1/3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]\,(d\,\text{Sec}[e+f\,x])^{2/3}}{2^{2/3}\,f\,(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^{1/3}}-\frac{i\,a^{1/3}\,\text{Log}[\text{Cos}[e+f\,x]]\,(d\,\text{Sec}[e+f\,x])^{2/3}}{2\times 2^{2/3}\,f\,(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^{1/3}}-\frac{3\,i\,a^{1/3}\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}\right]\,(d\,\text{Sec}[e+f\,x])^{2/3}}{2\times 2^{2/3}\,f\,(a-i\,a\,\text{Tan}[e+f\,x])^{1/3}\,(a+i\,a\,\text{Tan}[e+f\,x])^{1/3}}$$

Result (type 5, 116 leaves):

$$\frac{3\,i\,\left(1+e^{-2\,i\,(e+f\,x)}\right)^{1/3}\,\left(\frac{d\,e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}\right)^{2/3}\,\text{Hypergeometric2F1}\left[\frac{1}{3},\,\frac{1}{3},\,\frac{4}{3},\,-e^{-2\,i\,(e+f\,x)}\right]}{2^{2/3}\,\left(\frac{a\,e^{2\,i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}\right)^{1/3}\,f}$$

■ Problem 454: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Sec}[c+d\,x])^m}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 5, 86 leaves, 4 steps):

$$\frac{1}{a\,d\,m}\,i\,2^{-1+\frac{m}{2}}\,\text{Hypergeometric2F1}\left[2-\frac{m}{2},\,\frac{m}{2},\,\frac{2+m}{2},\,\frac{1}{2}\,(1-i\,\text{Tan}[c+d\,x])\right]\,(e\,\text{Sec}[c+d\,x])^m\,(1+i\,\text{Tan}[c+d\,x])^{-m/2}$$

Result (type 5, 212 leaves):

$$-\left(i\,2^{-1+m}\,e^{-i\,(c+d\,m\,x)}\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^m\,\left(1+e^{2\,i\,(c+d\,x)}\right)^m\right.$$
$$\left(e^{i\,d\,(-2+m)\,x}\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(-2+m),\,m,\,\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]+e^{i\,(2\,c+d\,m\,x)}\,(-2+m)\,\text{Hypergeometric2F1}\left[\frac{m}{2},\,m,\,\frac{2+m}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right)$$
$$\left.\text{Sec}[c+d\,x]^{1-m}\,(e\,\text{Sec}[c+d\,x])^m\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\right)\Big/\,(d\,(-2+m)\,m\,(a+i\,a\,\text{Tan}[c+d\,x]))$$

■ Problem 455: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\text{Sec}[c+d\,x])^m}{(a+i\,a\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 5, 86 leaves, 4 steps):

$$\frac{1}{a^2\,d\,m}\,i\,2^{-2+\frac{m}{2}}\,\text{Hypergeometric2F1}\left[3-\frac{m}{2},\,\frac{m}{2},\,\frac{2+m}{2},\,\frac{1}{2}\,(1-i\,\text{Tan}[c+d\,x])\right]\,(e\,\text{Sec}[c+d\,x])^m\,(1+i\,\text{Tan}[c+d\,x])^{-m/2}$$

Result (type 5, 279 leaves):

$$-\frac{1}{d\,(-4+m)\,(-2+m)\,m\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,i\,2^{-2+m}\,e^{-i\,(2\,c+d\,m\,x)}\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^m \left(1+e^{2\,i\,(c+d\,x)}\right)^m \left(e^{i\,d\,(-4+m)\,x}\,(-2+m)\,m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-4+m),\,m,\,\frac{1}{2}\,(-2+m),\,-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,c}\,(-4+m)\right.$$
$$\left.\left(2\,e^{i\,d\,(-2+m)\,x}\,m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-2+m),\,m,\,\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]+e^{i\,(2\,c+d\,m\,x)}\,(-2+m)\,\mathrm{Hypergeometric2F1}\left[\frac{m}{2},\,m,\,\frac{2+m}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right)\right)$$
$$\mathrm{Sec}[c+d\,x]^{2-m}\,(e\,\mathrm{Sec}[c+d\,x])^m\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2$$

Problem 456: Result more than twice size of optimal antiderivative.

$$\int\frac{(e\,\mathrm{Sec}[c+d\,x])^m}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 5, 86 leaves, 4 steps):

$$\frac{1}{a^3\,d\,m}\,i\,2^{-3+\frac{m}{2}}\,\mathrm{Hypergeometric2F1}\left[4-\frac{m}{2},\,\frac{m}{2},\,\frac{2+m}{2},\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[c+d\,x])\right]\,(e\,\mathrm{Sec}[c+d\,x])^m\,(1+i\,\mathrm{Tan}[c+d\,x])^{-m/2}$$

Result (type 5, 347 leaves):

$$-\frac{1}{d\,(-6+m)\,(-4+m)\,(-2+m)\,m\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}$$
$$i\,2^{-3+m}\,e^{-i\,(3\,c+d\,m\,x)}\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^m\,\left(1+e^{2\,i\,(c+d\,x)}\right)^m\,\left(e^{i\,d\,(-6+m)\,x}\,m\,\left(8-6\,m+m^2\right)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-6+m),\,m,\,\frac{1}{2}\,(-4+m),\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$e^{2\,i\,c}\,(-6+m)\,\left(3\,e^{i\,d\,(-4+m)\,x}\,(-2+m)\,m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-4+m),\,m,\,\frac{1}{2}\,(-2+m),\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$e^{2\,i\,c}\,(-4+m)\,\left(3\,e^{i\,d\,(-2+m)\,x}\,m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-2+m),\,m,\,\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$\left.\left.\left.e^{i\,(2\,c+d\,m\,x)}\,(-2+m)\,\mathrm{Hypergeometric2F1}\left[\frac{m}{2},\,m,\,\frac{2+m}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^{3-m}\,(e\,\mathrm{Sec}[c+d\,x])^m\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3$$

Problem 466: Result more than twice size of optimal antiderivative.

$$\int\mathrm{Sec}[c+d\,x]^4\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 3, 65 leaves, 3 steps):

$$-\frac{2\,i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{2+n}}{a^2\,d\,(2+n)}+\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{3+n}}{a^3\,d\,(3+n)}$$

Result (type 3, 143 leaves):

$$-\left(i\,2^{3+n}\,e^{4\,i\,(c+d\,x)}\,\left(e^{i\,d\,x}\right)^n\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^n\,\left(3+e^{2\,i\,(c+d\,x)}+n\right)\,\mathrm{Sec}[c+d\,x]^{-n}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^{-n}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\right)\Big/$$
$$\left(d\,\left(1+e^{2\,i\,(c+d\,x)}\right)^3\,(2+n)\,(3+n)\right)$$

Problem 467: Result more than twice size of optimal antiderivative.

$$\int \text{Sec}[c+d x]^2 (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 3, 32 leaves, 2 steps):

$$-\frac{i (a+i a \text{Tan}[c+d x])^{1+n}}{a d (1+n)}$$

Result (type 3, 111 leaves):

$$-\frac{i\, 2^{1+n} e^{i (c+d x)} \left(e^{i d x}\right)^n \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{1+n} \text{Sec}[c+d x]^{-n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n}{d (1+n)}$$

Problem 468: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d x]^2 (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 56 leaves, 2 steps):

$$\frac{i a \text{Hypergeometric2F1}\left[2,-1+n,n,\frac{1}{2} (1+i \text{Tan}[c+d x])\right] (a+i a \text{Tan}[c+d x])^{-1+n}}{4 d (1-n)}$$

Result (type 5, 256 leaves):

$$-\frac{1}{d n \left(-1+n^2\right)} i\, 2^{-3+n} e^{-2 i (c+d n x)} \left(e^{i d x}\right)^n \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^n \Big(\left(e^{2 i d (-1+n) x}+e^{2 i (c+d n x)}\right) n (1+n)+2 e^{2 i (c+d n x)} \left(1+e^{2 i (c+d x)}\right)^n \left(-1+n^2\right) \text{Hypergeometric2F1}\left[n,n,1+n,-e^{2 i (c+d x)}\right]+e^{2 i (2 c+d x+d n x)} \left(1+e^{2 i (c+d x)}\right)^n (-1+n) n \text{Hypergeometric2F1}\left[n,1+n,2+n,-e^{2 i (c+d x)}\right]\Big) \text{Sec}[c+d x]^{-n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n$$

Problem 469: Unable to integrate problem.

$$\int \text{Cos}[c+d x]^4 (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 60 leaves, 2 steps):

$$\frac{i a^2 \text{Hypergeometric2F1}\left[3,-2+n,-1+n,\frac{1}{2} (1+i \text{Tan}[c+d x])\right] (a+i a \text{Tan}[c+d x])^{-2+n}}{8 d (2-n)}$$

Result (type 8, 26 leaves):

$$\int \text{Cos}[c+d x]^4 (a+i a \text{Tan}[c+d x])^n \, dx$$

Problem 470: Unable to integrate problem.

$$\int \text{Cos}[c+d x]^6 (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 60 leaves, 2 steps):

$$\frac{i\, a^3 \,\text{Hypergeometric2F1}\left[4,\, -3+n,\, -2+n,\, \frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^{-3+n}}{16\,d\,(3-n)}$$

Result (type 8, 26 leaves):

$$\int \text{Cos}[c+d\,x]^6\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,dx$$

Problem 474: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 85 leaves, 4 steps):

$$-\frac{1}{d}\,i\,2^{-\frac{1}{2}+n}\,\text{Cos}[c+d\,x]\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,\frac{3}{2}-n,\,\frac{1}{2},\,\frac{1}{2}\,(1-i\,\text{Tan}[c+d\,x])\right]\,(1+i\,\text{Tan}[c+d\,x])^{\frac{1}{2}-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Result (type 5, 195 leaves):

$$-\frac{1}{d\,(-1+4\,n^2)}\,i\,2^{-1+n}\,\left(e^{i\,d\,x}\right)^n\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^{-1+n}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{-1+n}$$
$$\left((1+2\,n)\,\text{Hypergeometric2F1}\left[-\frac{1}{2}+n,\,n,\,\frac{1}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,(c+d\,x)}\,(-1+2\,n)\,\text{Hypergeometric2F1}\left[n,\,\frac{1}{2}+n,\,\frac{3}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]\right)$$
$$\text{Sec}[c+d\,x]^{-n}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Problem 475: Result more than twice size of optimal antiderivative.

$$\int \text{Cos}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 94 leaves, 4 steps):

$$-\frac{1}{3\,a\,d}\,i\,2^{-\frac{3}{2}+n}\,\text{Cos}[c+d\,x]^3\,\text{Hypergeometric2F1}\left[-\frac{3}{2},\,\frac{5}{2}-n,\,-\frac{1}{2},\,\frac{1}{2}\,(1-i\,\text{Tan}[c+d\,x])\right]\,(1+i\,\text{Tan}[c+d\,x])^{\frac{1}{2}-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1+n}$$

Result (type 5, 321 leaves):

$$-\frac{1}{d\,(9-40\,n^2+16\,n^4)}$$
$$i\,2^{-3+n}\,e^{-3\,i\,(c+d\,x)}\,\left(e^{i\,d\,x}\right)^n\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^n\,\left(1+e^{2\,i\,(c+d\,x)}\right)^n\,\left(\left(-3-2\,n+12\,n^2+8\,n^3\right)\,\text{Hypergeometric2F1}\left[-\frac{3}{2}+n,\,n,\,-\frac{1}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]+\right.$$
$$e^{2\,i\,(c+d\,x)}\,(-3+2\,n)\,\left(3\,\left(3+8\,n+4\,n^2\right)\,\text{Hypergeometric2F1}\left[-\frac{1}{2}+n,\,n,\,\frac{1}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,(c+d\,x)}\,(-1+2\,n)\right.$$
$$\left.\left.\left((9+6\,n)\,\text{Hypergeometric2F1}\left[n,\,\frac{1}{2}+n,\,\frac{3}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,(c+d\,x)}\,(1+2\,n)\,\text{Hypergeometric2F1}\left[n,\,\frac{3}{2}+n,\,\frac{5}{2}+n,\,-e^{2\,i\,(c+d\,x)}\right]\right)\right)\right)$$
$$\text{Sec}[c+d\,x]^{-n}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Problem 476: Unable to integrate problem.

$$\int \text{Cos}[c+d x]^5 (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 94 leaves, 4 steps):

$$-\frac{1}{5 a^2 d} i\, 2^{-\frac{5}{2}+n} \text{Cos}[c+d x]^5 \,\text{Hypergeometric2F1}\left[-\frac{5}{2}, \frac{7}{2}-n, -\frac{3}{2}, \frac{1}{2} (1-i \text{Tan}[c+d x])\right] (1+i \text{Tan}[c+d x])^{\frac{1}{2}-n} (a+i a \text{Tan}[c+d x])^{2+n}$$

Result (type 8, 26 leaves):

$$\int \text{Cos}[c+d x]^5 (a+i a \text{Tan}[c+d x])^n \, dx$$

Problem 497: Result more than twice size of optimal antiderivative.

$$\int (e \,\text{Sec}[c+d x])^{-2 n} (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 65 leaves, 3 steps):

$$-\frac{i \,\text{Hypergeometric2F1}\left[1, -n, 1-n, \frac{1}{2} (1-i \text{Tan}[c+d x])\right] (e \,\text{Sec}[c+d x])^{-2 n} (a+i a \text{Tan}[c+d x])^n}{2 d n}$$

Result (type 5, 152 leaves):

$$-\frac{1}{d n} i\, 2^{-1-n} \left(e^{i d x}\right)^n \left(1+e^{-2 i (c+d x)}\right)^{-n} \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{-n}$$
$$\text{Hypergeometric2F1}\left[-n, -n, 1-n, -e^{-2 i (c+d x)}\right] \text{Sec}[c+d x]^n (e \,\text{Sec}[c+d x])^{-2 n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n$$

Problem 498: Result more than twice size of optimal antiderivative.

$$\int (e \,\text{Sec}[c+d x])^{-1-2 n} (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 95 leaves, 5 steps):

$$\frac{1}{d} i\, 2^{-\frac{1}{2}-n} \text{Hypergeometric2F1}\left[-\frac{1}{2}, \frac{1}{2} (3+2 n), \frac{1}{2}, \frac{1}{2} (1+i \text{Tan}[c+d x])\right] (e \,\text{Sec}[c+d x])^{-1-2 n} (1-i \text{Tan}[c+d x])^{\frac{1}{2}+n} (a+i a \text{Tan}[c+d x])^n$$

Result (type 5, 192 leaves):

$$\frac{1}{d} i\, 2^{-1-n} \left(e^{i d x}\right)^n \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{-1-n} \left(1+e^{2 i (c+d x)}\right)^{-1-n}$$
$$\left(\text{Hypergeometric2F1}\left[-\frac{1}{2}, -n, \frac{1}{2}, -e^{2 i (c+d x)}\right] - e^{2 i (c+d x)} \text{Hypergeometric2F1}\left[\frac{1}{2}, -n, \frac{3}{2}, -e^{2 i (c+d x)}\right]\right)$$
$$\text{Sec}[c+d x]^{1+n} (e \,\text{Sec}[c+d x])^{-1-2 n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n$$

Problem 499: Result more than twice size of optimal antiderivative.

$$\int (e \,\text{Sec}[c+d x])^{-2-2 n} (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 74 leaves, 4 steps):

$$-\frac{1}{4 a d (1+n)} i \text{Hypergeometric2F1}\left[2,-1-n,-n,\frac{1}{2}(1-i \text{Tan}[c+d x])\right] (e \text{Sec}[c+d x])^{-2 (1+n)} (a+i a \text{Tan}[c+d x])^{1+n}$$

Result (type 5, 335 leaves):

$$-\frac{1}{d e^2 n \left(-1+n^2\right)} i 2^{-3-n} e^{-2 i (c+d x)} \left(e^{i d x}\right)^n \left(1+e^{-2 i (c+d x)}\right)^{-n} \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{-n} \left(1+e^{2 i (c+d x)}\right)^{-n} \left(\left(1+e^{2 i (c+d x)}\right)^n n (1+n) \text{Hypergeometric2F1}\left[1-n,-n,2-n,-e^{-2 i (c+d x)}\right]+e^{2 i (c+d x)} (-1+n) \left(\left(1+e^{-2 i (c+d x)}\right)^n \left(-1+\left(1+e^{2 i (c+d x)}\right)^n+e^{2 i (c+d x)} \left(1+e^{2 i (c+d x)}\right)^n\right) n+2 \left(1+e^{2 i (c+d x)}\right)^n (1+n) \text{Hypergeometric2F1}\left[-n,-n,1-n,-e^{-2 i (c+d x)}\right]\right)\right) \text{Sec}[c+d x]^n (e \text{Sec}[c+d x])^{-2 n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n$$

Problem 500: Result more than twice size of optimal antiderivative.

$$\int (e \text{Sec}[c+d x])^{-3-2 n} (a+i a \text{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 97 leaves, 5 steps):

$$\frac{1}{3 d} i 2^{-\frac{3}{2}-n} \text{Hypergeometric2F1}\left[-\frac{3}{2},\frac{1}{2}(5+2 n),-\frac{1}{2},\frac{1}{2}(1+i \text{Tan}[c+d x])\right] (e \text{Sec}[c+d x])^{-3-2 n} (1-i \text{Tan}[c+d x])^{\frac{3}{2}+n} (a+i a \text{Tan}[c+d x])^n$$

Result (type 5, 273 leaves):

$$\frac{1}{3 d} i 2^{-3-n} e^{-3 i (c+d x)} \left(e^{i d x}\right)^n \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{-n} \left(1+e^{2 i (c+d x)}\right)^{-n} \left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-n,-\frac{1}{2},-e^{2 i (c+d x)}\right]+9 e^{2 i (c+d x)} \text{Hypergeometric2F1}\left[-\frac{1}{2},-n,\frac{1}{2},-e^{2 i (c+d x)}\right]-9 e^{4 i (c+d x)} \text{Hypergeometric2F1}\left[\frac{1}{2},-n,\frac{3}{2},-e^{2 i (c+d x)}\right]-e^{6 i (c+d x)} \text{Hypergeometric2F1}\left[\frac{3}{2},-n,\frac{5}{2},-e^{2 i (c+d x)}\right]\right) \text{Sec}[c+d x]^{3+n} (e \text{Sec}[c+d x])^{-3-2 n} (\text{Cos}[d x]+i \text{Sin}[d x])^{-n} (a+i a \text{Tan}[c+d x])^n$$

Problem 501: Result more than twice size of optimal antiderivative.

$$\int (d \text{Sec}[e+f x])^{2 n} (a+i a \text{Tan}[e+f x])^{-2-n} \, dx$$

Optimal (type 5, 66 leaves, 4 steps):

$$\frac{i \text{Hypergeometric2F1}\left[3,n,1+n,\frac{1}{2}(1-i \text{Tan}[e+f x])\right] (d \text{Sec}[e+f x])^{2 n} (a+i a \text{Tan}[e+f x])^{-n}}{8 a^2 f n}$$

Result (type 5, 257 leaves):

$$\frac{1}{f n (1+n) (2+n)} i 2^{-3+n} e^{-2 i (e+2 f x)} \left(e^{i f x}\right)^{-n} \left(1+e^{-2 i (e+f x)}\right)^n \left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^n \left(e^{4 i (e+f x)} \left(2+3 n+n^2\right) \text{Hypergeometric2F1}\left[n,n,1+n,-e^{-2 i (e+f x)}\right]+2 e^{2 i (e+f x)} n (2+n) \text{Hypergeometric2F1}\left[n,1+n,2+n,-e^{-2 i (e+f x)}\right]+n (1+n) \text{Hypergeometric2F1}\left[n,2+n,3+n,-e^{-2 i (e+f x)}\right]\right) \text{Sec}[e+f x]^{2-n} (d \text{Sec}[e+f x])^{2 n} (\text{Cos}[f x]+i \text{Sin}[f x])^{2+n} (a+i a \text{Tan}[e+f x])^{-2-n}$$

Problem 502: Result more than twice size of optimal antiderivative.

$$\int (d\,\mathrm{Sec}[e+f\,x])^{2n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-1-n}\,dx$$

Optimal (type 5, 66 leaves, 4 steps) :

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[2,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-n}}{4\,a\,f\,n}$$

Result (type 5, 206 leaves) :

$$\frac{1}{f\,n\,(1+n)}i\,2^{-2+n}\,e^{-i\,(e+2\,f\,x)}\,\left(e^{i\,f\,x}\right)^{-n}\,\left(1+e^{-2\,i\,(e+f\,x)}\right)^{n}\,\left(\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}\right)^{n}$$
$$\left(e^{2\,i\,(e+f\,x)}\,(1+n)\,\mathrm{Hypergeometric2F1}\left[n,\,n,\,1+n,\,-e^{-2\,i\,(e+f\,x)}\right]+n\,\mathrm{Hypergeometric2F1}\left[n,\,1+n,\,2+n,\,-e^{-2\,i\,(e+f\,x)}\right]\right)$$
$$\mathrm{Sec}[e+f\,x]^{1-n}\,(d\,\mathrm{Sec}[e+f\,x])^{2n}\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^{1+n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-1-n}$$

Problem 503: Result more than twice size of optimal antiderivative.

$$\int (d\,\mathrm{Sec}[e+f\,x])^{2n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-n}\,dx$$

Optimal (type 5, 63 leaves, 3 steps) :

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(d\,\mathrm{Sec}[e+f\,x])^{2n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-n}}{2\,f\,n}$$

Result (type 5, 144 leaves) :

$$\frac{1}{f\,n}i\,2^{-1+n}\,\left(e^{i\,f\,x}\right)^{-n}\,\left(1+e^{-2\,i\,(e+f\,x)}\right)^{n}\,\left(\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}\right)^{n}\,\mathrm{Hypergeometric2F1}\left[n,\,n,\,1+n,\,-e^{-2\,i\,(e+f\,x)}\right]$$
$$\mathrm{Sec}[e+f\,x]^{-n}\,(d\,\mathrm{Sec}[e+f\,x])^{2n}\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^{n}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{-n}$$

Problem 508: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^{5}\,(a+b\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 74 leaves, 4 steps) :

$$\frac{3\,a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+\frac{b\,\mathrm{Sec}[c+d\,x]^{5}}{5\,d}+\frac{3\,a\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,d}+\frac{a\,\mathrm{Sec}[c+d\,x]^{3}\,\mathrm{Tan}[c+d\,x]}{4\,d}$$

Result (type 3, 207 leaves) :

$$-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+$$
$$\frac{b\,\text{Sec}[c+d\,x]^5}{5\,d}+\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}+\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-$$
$$\frac{a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4}-\frac{3\,a}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}$$

- **Problem 512: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]\,\left(a+b\,\text{Tan}[c+d\,x]\right)\,dx$$

Optimal (type 3, 24 leaves, 2 steps) :

$$\frac{a\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{b\,\text{Sec}[c+d\,x]}{d}$$

Result (type 3, 81 leaves) :

$$-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d\,x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d\,x}{2}\right]\right]}{d}+\frac{b\,\text{Sec}[c+d\,x]}{d}$$

- **Problem 520: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^2\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\,dx$$

Optimal (type 3, 22 leaves, 2 steps) :

$$\frac{\left(a+b\,\text{Tan}[c+d\,x]\right)^3}{3\,b\,d}$$

Result (type 3, 56 leaves) :

$$\frac{\text{Sec}[c+d\,x]^2\,\left(6\,a\,b+\left(3\,a^2+b^2+\left(3\,a^2-b^2\right)\,\text{Cos}[2\,(c+d\,x)]\right)\,\text{Tan}[c+d\,x]\right)}{6\,d}$$

- **Problem 523: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^7\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2\,dx$$

Optimal (type 3, 163 leaves, 6 steps) :

$$\frac{5\,\left(8\,a^2-b^2\right)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{128\,d}+\frac{9\,a\,b\,\text{Sec}[c+d\,x]^7}{56\,d}+\frac{5\,\left(8\,a^2-b^2\right)\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{128\,d}+$$
$$\frac{5\,\left(8\,a^2-b^2\right)\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{192\,d}+\frac{\left(8\,a^2-b^2\right)\,\text{Sec}[c+d\,x]^5\,\text{Tan}[c+d\,x]}{48\,d}+\frac{b\,\text{Sec}[c+d\,x]^7\,\left(a+b\,\text{Tan}[c+d\,x]\right)}{8\,d}$$

Result (type 3, 1521 leaves) :

$$\frac{5\,a\,b\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{56\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{5\,(8\,a^2-b^2)\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{128\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{5\,(8\,a^2-b^2)\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{128\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{b^2\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{(28\,a^2+24\,a\,b+7\,b^2)\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{1344\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{(112\,a^2+64\,a\,b-7\,b^2)\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{1792\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{5\,(56\,a^2+16\,a\,b-7\,b^2)\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{1792\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{a\,b\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{28\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{a\,b\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{14\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^5\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{5\,a\,b\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{56\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{5\,a\,b\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{56\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-$$

$$\frac{b^2\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{128\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^8\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,\mathrm{Cos}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{28\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^7\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{(-28\,a^2+24\,a\,b-7\,b^2)\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{1344\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^6\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{14\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^5\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(-112\,a^2+64\,a\,b+7\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{1792\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{5\,a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{56\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{5\,\left(56\,a^2-16\,a\,b-7\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{1792\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$
$$\frac{5\,a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{56\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

- **Problem 524: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 131 leaves, 5 steps):

$$\frac{\left(6\,a^2-b^2\right)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{16\,d}+\frac{7\,a\,b\,\text{Sec}[c+d\,x]^5}{30\,d}+$$
$$\frac{\left(6\,a^2-b^2\right)\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{16\,d}+\frac{\left(6\,a^2-b^2\right)\,\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{24\,d}+\frac{b\,\text{Sec}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])}{6\,d}$$

Result (type 3, 1175 leaves):

$$\frac{3\,a\,b\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{20\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{\left(-6\,a^2+b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(6\,a^2-b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{b^2\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^6\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(5\,a^2+4\,a\,b\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{80\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(30\,a^2+12\,a\,b-5\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{160\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{10\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^5(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}+$$

$$\frac{3\, a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{20\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^3(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}+$$

$$\frac{3\, a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{20\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}-$$

$$\frac{b^2\, \text{Cos}[c+d\, x]^2\,(a+b\, \text{Tan}[c+d\, x])^2}{48\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^6(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}-$$

$$\frac{a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{10\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^5(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}+$$

$$\frac{\left(-5\, a^2+4\, a\, b\right)\text{Cos}[c+d\, x]^2\,(a+b\, \text{Tan}[c+d\, x])^2}{80\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^4(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}-$$

$$\frac{3\, a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{20\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^3(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}+$$

$$\frac{\left(-30\, a^2+12\, a\, b+5\, b^2\right)\text{Cos}[c+d\, x]^2\,(a+b\, \text{Tan}[c+d\, x])^2}{160\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)^2(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}-$$

$$\frac{3\, a\, b\, \text{Cos}[c+d\, x]^2\, \text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\,(a+b\, \text{Tan}[c+d\, x])^2}{20\, d\left(\text{Cos}\left[\frac{1}{2}(c+d\, x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\, x)\right]\right)(a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])^2}$$

- **Problem 525: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\, x]^3\,(a+b\, \text{Tan}[c+d\, x])^2\, dx$$

Optimal (type 3, 99 leaves, 4 steps):

$$\frac{\left(4\, a^2-b^2\right)\text{ArcTanh}[\text{Sin}[c+d\, x]]}{8\, d}+\frac{5\, a\, b\, \text{Sec}[c+d\, x]^3}{12\, d}+\frac{\left(4\, a^2-b^2\right)\text{Sec}[c+d\, x]\, \text{Tan}[c+d\, x]}{8\, d}+\frac{b\, \text{Sec}[c+d\, x]^3\,(a+b\, \text{Tan}[c+d\, x])}{4\, d}$$

Result (type 3, 851 leaves):

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{\left(-4\,a^2+b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{\left(4\,a^2-b^2\right)\,\text{Cos}[c+d\,x]^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{b^2\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{\left(12\,a^2+8\,a\,b-3\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{b^2\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{16\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\frac{\left(-12\,a^2+8\,a\,b+3\,b^2\right)\,\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{48\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{a\,b\,\text{Cos}[c+d\,x]^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^2}{3\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

- **Problem 526: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 65 leaves, 3 steps):

$$\frac{\left(2\,a^2-b^2\right)\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}+\frac{3\,a\,b\,\text{Sec}[c+d\,x]}{2\,d}+\frac{b\,\text{Sec}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])}{2\,d}$$

Result (type 3, 181 leaves):

$$\frac{1}{4\,d}\left(8\,a\,b+\left(-4\,a^2+2\,b^2\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.$$

$$4\,a^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2\,b^2\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+$$

$$\left.\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+16\,a\,b\,\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]^2-\frac{b^2}{\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

- **Problem 534: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 22 leaves, 2 steps):

$$\frac{(a+b\,\text{Tan}[c+d\,x])^4}{4\,b\,d}$$

Result (type 3, 79 leaves):

$$\frac{1}{8\,d}\text{Sec}[c+d\,x]^4\left(\left(6\,a^2\,b-2\,b^3\right)\text{Cos}[2\,(c+d\,x)]+a\left(6\,a\,b+2\left(a^2+b^2\right)\text{Sin}[2\,(c+d\,x)]+\left(a^2-b^2\right)\text{Sin}[4\,(c+d\,x)]\right)\right)$$

- **Problem 537: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 159 leaves, 6 steps):

$$\frac{3\,a\left(2\,a^2-b^2\right)\text{ArcTanh}[\text{Sin}[c+d\,x]]}{16\,d}+\frac{3\,a\left(2\,a^2-b^2\right)\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{16\,d}+$$

$$\frac{a\left(2\,a^2-b^2\right)\text{Sec}[c+d\,x]^3\,\text{Tan}[c+d\,x]}{8\,d}+\frac{b\,\text{Sec}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^2}{7\,d}+\frac{b\,\text{Sec}[c+d\,x]^5\left(4\left(8\,a^2-b^2\right)+15\,a\,b\,\text{Tan}[c+d\,x]\right)}{70\,d}$$

Result (type 3, 637 leaves):

$$\frac{1}{35840\,d}\mathrm{Sec}[c+d\,x]^7\Big(10752\,a^2\,b+1536\,b^3+3584\,(3\,a^2\,b-b^3)\,\mathrm{Cos}[2\,(c+d\,x)]-$$
$$4410\,a^3\,\mathrm{Cos}[3\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+2205\,a\,b^2\,\mathrm{Cos}[3\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$1470\,a^3\,\mathrm{Cos}[5\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+735\,a\,b^2\,\mathrm{Cos}[5\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$210\,a^3\,\mathrm{Cos}[7\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+105\,a\,b^2\,\mathrm{Cos}[7\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$3675\,a\,(2\,a^2-b^2)\,\mathrm{Cos}[c+d\,x]\,\Big(\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\Big)+$$
$$4410\,a^3\,\mathrm{Cos}[3\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$2205\,a\,b^2\,\mathrm{Cos}[3\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+1470\,a^3\,\mathrm{Cos}[5\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$735\,a\,b^2\,\mathrm{Cos}[5\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+210\,a^3\,\mathrm{Cos}[7\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$105\,a\,b^2\,\mathrm{Cos}[7\,(c+d\,x)]\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]+4340\,a^3\,\mathrm{Sin}[2\,(c+d\,x)]+6790\,a\,b^2\,\mathrm{Sin}[2\,(c+d\,x)]+$$
$$2800\,a^3\,\mathrm{Sin}[4\,(c+d\,x)]-1400\,a\,b^2\,\mathrm{Sin}[4\,(c+d\,x)]+420\,a^3\,\mathrm{Sin}[6\,(c+d\,x)]-210\,a\,b^2\,\mathrm{Sin}[6\,(c+d\,x)]\Big)$$

- **Problem 538: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 126 leaves, 5 steps):

$$\frac{a\,(4\,a^2-3\,b^2)\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{8\,d}+\frac{a\,(4\,a^2-3\,b^2)\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{8\,d}+$$
$$\frac{b\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{5\,d}+\frac{b\,\mathrm{Sec}[c+d\,x]^3\,(8\,(6\,a^2-b^2)+21\,a\,b\,\mathrm{Tan}[c+d\,x])}{60\,d}$$

Result (type 3, 464 leaves):

$$\frac{1}{1920\,d}\operatorname{Sec}[c+d\,x]^5\Big(960\,a^2\,b+64\,b^3+320\,\big(3\,a^2\,b-b^3\big)\operatorname{Cos}[2\,(c+d\,x)]-$$
$$300\,a^3\operatorname{Cos}[3\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+225\,a\,b^2\operatorname{Cos}[3\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$60\,a^3\operatorname{Cos}[5\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+45\,a\,b^2\operatorname{Cos}[5\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$150\,a\,\big(4\,a^2-3\,b^2\big)\operatorname{Cos}[c+d\,x]\Big(\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]\Big)+$$
$$300\,a^3\operatorname{Cos}[3\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-225\,a\,b^2\operatorname{Cos}[3\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$60\,a^3\operatorname{Cos}[5\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-45\,a\,b^2\operatorname{Cos}[5\,(c+d\,x)]\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+$$
$$240\,a^3\operatorname{Sin}[2\,(c+d\,x)]+540\,a\,b^2\operatorname{Sin}[2\,(c+d\,x)]+120\,a^3\operatorname{Sin}[4\,(c+d\,x)]-90\,a\,b^2\operatorname{Sin}[4\,(c+d\,x)]\Big)$$

Problem 539: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d\,x]\,(a+b\operatorname{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 91 leaves, 4 steps):

$$\frac{a\,\big(2\,a^2-3\,b^2\big)\operatorname{ArcTanh}[\operatorname{Sin}[c+d\,x]]}{2\,d}+\frac{b\operatorname{Sec}[c+d\,x]\,(a+b\operatorname{Tan}[c+d\,x])^2}{3\,d}+\frac{b\operatorname{Sec}[c+d\,x]\,\big(4\,\big(4\,a^2-b^2\big)+5\,a\,b\operatorname{Tan}[c+d\,x]\big)}{6\,d}$$

Result (type 3, 293 leaves):

$$\frac{1}{12\,d}\Big(36\,a^2\,b-10\,b^3-6\,a\,\big(2\,a^2-3\,b^2\big)\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]-\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+12\,a^3\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]-$$
$$18\,a\,b^2\operatorname{Log}\Big[\operatorname{Cos}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]+\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]\Big]+\frac{9\,a\,b^2}{\big(\operatorname{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]-\operatorname{Sin}\big[\tfrac{1}{2}\,(c+d\,x)\big]\big)^2}+\frac{b^3}{\big(\operatorname{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]-\operatorname{Sin}\big[\tfrac{1}{2}\,(c+d\,x)\big]\big)^2}+$$
$$2\,b\,\big(18\,a^2-b^2+2\,b^2\operatorname{Cos}[c+d\,x]+\big(18\,a^2-5\,b^2\big)\operatorname{Cos}[2\,(c+d\,x)]\big)\operatorname{Sec}[c+d\,x]^3\operatorname{Sin}\Big[\tfrac{1}{2}\,(c+d\,x)\Big]^2-$$
$$\frac{9\,a\,b^2}{\big(\operatorname{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]+\operatorname{Sin}\big[\tfrac{1}{2}\,(c+d\,x)\big]\big)^2}+\frac{b^3}{\big(\operatorname{Cos}\big[\tfrac{1}{2}\,(c+d\,x)\big]+\operatorname{Sin}\big[\tfrac{1}{2}\,(c+d\,x)\big]\big)^2}\Big)$$

Problem 547: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Cos}[c+d\,x]^2}{a+b\operatorname{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 93 leaves, 7 steps):

$$\frac{a\left(a^2+3 b^2\right) x}{2\left(a^2+b^2\right)^2}+\frac{b^3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}+\frac{\operatorname{Cos}[c+d x]^2(b+a \operatorname{Tan}[c+d x])}{2\left(a^2+b^2\right) d}$$

Result (type 3, 143 leaves) :

$$\frac{1}{4\left(a^2+b^2\right)^2 d}\left(2 a^3 c+6 a b^2 c+4 \mathrm{i} b^3 c+2 a^3 d x+6 a b^2 d x+4 \mathrm{i} b^3 d x-4 \mathrm{i} b^3 \operatorname{ArcTan}[\operatorname{Tan}[c+d x]]+\right.$$
$$\left.b\left(a^2+b^2\right) \operatorname{Cos}[2(c+d x)]+2 b^3 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]+a^3 \operatorname{Sin}[2(c+d x)]+a b^2 \operatorname{Sin}[2(c+d x)]\right)$$

Problem 549: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]^5}{a+b \operatorname{Tan}[c+d x]} \, dx$$

Optimal (type 3, 140 leaves, 9 steps) :

$$-\frac{a\left(2 a^2+3 b^2\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 b^4 d}-\frac{\left(a^2+b^2\right)^{3/2} \operatorname{ArcTanh}\left[\frac{\operatorname{Cos}[c+d x](b-a \operatorname{Tan}[c+d x])}{\sqrt{a^2+b^2}}\right]}{b^4 d}+$$
$$\frac{\left(a^2+b^2\right) \operatorname{Sec}[c+d x]}{b^3 d}+\frac{\operatorname{Sec}[c+d x]^3}{3 b d}-\frac{a \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{2 b^2 d}$$

Result (type 3, 321 leaves) :

$$\frac{1}{24 b^4 d}\left(48\left(a^2+b^2\right)^{3/2} \operatorname{ArcTanh}\left[\frac{-b+a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}\right]+\right.$$
$$\operatorname{Sec}[c+d x]^3\left(12 a^2 b+20 b^3+12 b\left(a^2+b^2\right) \operatorname{Cos}[2(c+d x)]+6 a^3 \operatorname{Cos}[3(c+d x)] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+\right.$$
$$9 a b^2 \operatorname{Cos}[3(c+d x)] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]+9 a\left(2 a^2+3 b^2\right) \operatorname{Cos}[c+d x]$$
$$\left(\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\right)-6 a^3 \operatorname{Cos}[3(c+d x)]$$
$$\left.\left.\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-9 a b^2 \operatorname{Cos}[3(c+d x)] \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]-6 a b^2 \operatorname{Sin}[2(c+d x)]\right)\right)$$

Problem 554: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sec}[c+d x]^8}{(a+b \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 178 leaves, 3 steps) :

$$-\frac{6 a \left(a^2+b^2\right)^2 \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{b^7 d}+\frac{\left(5 a^4+9 a^2 b^2+3 b^4\right) \operatorname{Tan}[c+d x]}{b^6 d}-$$
$$\frac{a\left(2 a^2+3 b^2\right) \operatorname{Tan}[c+d x]^2}{b^5 d}+\frac{\left(a^2+b^2\right) \operatorname{Tan}[c+d x]^3}{b^4 d}-\frac{a \operatorname{Tan}[c+d x]^4}{2 b^3 d}+\frac{\operatorname{Tan}[c+d x]^5}{5 b^2 d}-\frac{\left(a^2+b^2\right)^3}{b^7 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 373 leaves) :

$$\frac{1}{160 a b^7 d (a+b \operatorname{Tan}[c+d x])}$$
$$\Big(b \operatorname{Sec}[c+d x]^6 \left(-70 a^5 b-60 a^3 b^3+50 a b^5-5 a b\left(27 a^4+32 a^2 b^2+b^4\right) \operatorname{Cos}[2 (c+d x)]-2\left(45 a^5 b+70 a^3 b^3+17 a b^5\right) \operatorname{Cos}[4 (c+d x)]-\right.$$
$$25 a^5 b \operatorname{Cos}[6 (c+d x)]-40 a^3 b^3 \operatorname{Cos}[6 (c+d x)]-11 a b^5 \operatorname{Cos}[6 (c+d x)]+120 a^6 \operatorname{Sin}[4 (c+d x)]+$$
$$200 a^4 b^2 \operatorname{Sin}[4 (c+d x)]+76 a^2 b^4 \operatorname{Sin}[4 (c+d x)]+20 b^6 \operatorname{Sin}[4 (c+d x)]+30 a^6 \operatorname{Sin}[6 (c+d x)]+55 a^4 b^2 \operatorname{Sin}[6 (c+d x)]+$$
$$\left.26 a^2 b^4 \operatorname{Sin}[6 (c+d x)]+5 b^6 \operatorname{Sin}[6 (c+d x)]\right)+10 b\left(30 a^6+47 a^4 b^2+10 a^2 b^4+5 b^6\right) \operatorname{Sec}[c+d x]^4 \operatorname{Tan}[c+d x]+$$
$$960 a^2\left(a^2+b^2\right)^2 (\operatorname{Log}[\operatorname{Cos}[c+d x]]-\operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]) (a+b \operatorname{Tan}[c+d x])\Big)$$

- **Problem 558: Result more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cos}[c+d x]^2}{(a+b \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 152 leaves, 7 steps) :

$$\frac{\left(a^4+6 a^2 b^2-3 b^4\right) x}{2\left(a^2+b^2\right)^3}+\frac{4 a b^3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^3 d}+\frac{b\left(a^2-3 b^2\right)}{2\left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])}+\frac{\operatorname{Cos}[c+d x]^2 (b+a \operatorname{Tan}[c+d x])}{2\left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 331 leaves) :

$$\frac{1}{4 a\left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])}$$
$$\Big(2 a^6 c+12 a^4 b^2 c-6 a^2 b^4 c+2 a^6 d x+12 a^4 b^2 d x-6 a^2 b^4 d x+16 a^3 b^3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+2 a b\left(a^4-b^4\right) \operatorname{Sin}[c+d x]^2+$$
$$a^6 \operatorname{Sin}[2 (c+d x)]-a^2 b^4 \operatorname{Sin}[2 (c+d x)]+4 a^2 b^4 \operatorname{Tan}[c+d x]+4 b^6 \operatorname{Tan}[c+d x]+2 a^5 b c \operatorname{Tan}[c+d x]+$$
$$12 a^3 b^3 c \operatorname{Tan}[c+d x]-6 a b^5 c \operatorname{Tan}[c+d x]+2 a^5 b d x \operatorname{Tan}[c+d x]+12 a^3 b^3 d x \operatorname{Tan}[c+d x]-6 a b^5 d x \operatorname{Tan}[c+d x]+$$
$$16 a^2 b^4 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] \operatorname{Tan}[c+d x]+2 a^2 b\left(a^2+b^2\right) \operatorname{Cos}[2 (c+d x)] (a+b \operatorname{Tan}[c+d x])\Big)$$

- **Problem 559: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cos}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 235 leaves, 8 steps) :

$$\frac{3\left(a^6+5a^4b^2+15a^2b^4-5b^6\right)x}{8\left(a^2+b^2\right)^4}+\frac{6ab^5\,\mathrm{Log}[a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx]]}{\left(a^2+b^2\right)^4d}+\frac{3b\left(a^2-b^2\right)\left(a^2+5b^2\right)}{8\left(a^2+b^2\right)^3d\,(a+b\,\mathrm{Tan}[c+dx])}+$$

$$\frac{\mathrm{Cos}[c+dx]^4\,(b+a\,\mathrm{Tan}[c+dx])}{4\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+dx])}-\frac{\mathrm{Cos}[c+dx]^2\left(b\left(a^2-5b^2\right)-3a\left(a^2+3b^2\right)\mathrm{Tan}[c+dx]\right)}{8\left(a^2+b^2\right)^2d\,(a+b\,\mathrm{Tan}[c+dx])}$$

Result (type 3, 737 leaves) :

$$\frac{1}{64a\left(a^2+b^2\right)^4d\,(a+b\,\mathrm{Tan}[c+dx])}$$
$$\Big(13a^7b+59a^5b^3+15a^3b^5-31ab^7+24a^8c+120a^6b^2c+360a^4b^4c+384\,i\,a^3b^5c-120a^2b^6c+24a^8dx+120a^6b^2dx+360a^4b^4dx+$$
$$384\,i\,a^3b^5dx-120a^2b^6dx+6ab\left(a^2+b^2\right)^2\left(a^2+5b^2\right)\mathrm{Cos}[2(c+dx)]+192a^3b^5\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^2\right]+$$
$$a^7b\,\mathrm{Cos}[5(c+dx)]\,\mathrm{Sec}[c+dx]+3a^5b^3\,\mathrm{Cos}[5(c+dx)]\,\mathrm{Sec}[c+dx]+3a^3b^5\,\mathrm{Cos}[5(c+dx)]\,\mathrm{Sec}[c+dx]+ab^7\,\mathrm{Cos}[5(c+dx)]\,\mathrm{Sec}[c+dx]+$$
$$9a^8\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[3(c+dx)]+39a^6b^2\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[3(c+dx)]+51a^4b^4\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[3(c+dx)]+$$
$$21a^2b^6\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[3(c+dx)]+a^8\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[5(c+dx)]+3a^6b^2\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[5(c+dx)]+3a^4b^4\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[5(c+dx)]+$$
$$a^2b^6\,\mathrm{Sec}[c+dx]\,\mathrm{Sin}[5(c+dx)]+8a^8\,\mathrm{Tan}[c+dx]+24a^6b^2\,\mathrm{Tan}[c+dx]-40a^4b^4\,\mathrm{Tan}[c+dx]+8a^2b^6\,\mathrm{Tan}[c+dx]+64b^8\,\mathrm{Tan}[c+dx]+$$
$$24a^7bc\,\mathrm{Tan}[c+dx]+120a^5b^3c\,\mathrm{Tan}[c+dx]+360a^3b^5c\,\mathrm{Tan}[c+dx]+384\,i\,a^2b^6c\,\mathrm{Tan}[c+dx]-120ab^7c\,\mathrm{Tan}[c+dx]+$$
$$24a^7bdx\,\mathrm{Tan}[c+dx]+120a^5b^3dx\,\mathrm{Tan}[c+dx]+360a^3b^5dx\,\mathrm{Tan}[c+dx]+384\,i\,a^2b^6dx\,\mathrm{Tan}[c+dx]-120ab^7dx\,\mathrm{Tan}[c+dx]+$$
$$192a^2b^6\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^2\right]\mathrm{Tan}[c+dx]-384\,i\,a^2b^5\,\mathrm{ArcTan}[\mathrm{Tan}[c+dx]]\,(a+b\,\mathrm{Tan}[c+dx])\Big)$$

- **Problem 560: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+dx]^7}{(a+b\,\mathrm{Tan}[c+dx])^2}\,dx$$

Optimal (type 3, 235 leaves, 8 steps) :

$$\frac{5\left(8a^4+12a^2b^2+3b^4\right)\mathrm{ArcSinh}[\mathrm{Tan}[c+dx]]\,\mathrm{Sec}[c+dx]}{8b^6d\sqrt{\mathrm{Sec}[c+dx]^2}}+\frac{5a\left(a^2+b^2\right)^{3/2}\mathrm{ArcTanh}\left[\frac{b-a\,\mathrm{Tan}[c+dx]}{\sqrt{a^2+b^2}\sqrt{\mathrm{Sec}[c+dx]^2}}\right]\mathrm{Sec}[c+dx]}{b^6d\sqrt{\mathrm{Sec}[c+dx]^2}}-$$

$$\frac{5\,\mathrm{Sec}[c+dx]^3\,(4a-3b\,\mathrm{Tan}[c+dx])}{12b^3d}-\frac{\mathrm{Sec}[c+dx]^5}{bd\,(a+b\,\mathrm{Tan}[c+dx])}-\frac{5\,\mathrm{Sec}[c+dx]\left(8a\left(a^2+b^2\right)-b\left(4a^2+3b^2\right)\mathrm{Tan}[c+dx]\right)}{8b^5d}$$

Result (type 3, 1152 leaves) :

$$-\frac{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\frac{a\,\left(12\,a^2+13\,b^2\right)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{3\,b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{1}{b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

$$10\,\mathrm{i}\,a\,(a+\mathrm{i}\,b)\,(\mathrm{i}\,a+b)\,\sqrt{a^2+b^2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a^2+b^2}\,\left(-b\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{a^2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+b^2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]}\right]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2-$$

$$\frac{1}{8\,b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}5\,\left(8\,a^4+12\,a^2\,b^2+3\,b^4\right)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$\frac{1}{8\,b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}5\,\left(8\,a^4+12\,a^2\,b^2+3\,b^4\right)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$\frac{\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{16\,b^2\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{\left(36\,a^2-8\,a\,b+21\,b^2\right)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{48\,b^4\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\frac{a\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{3\,b^3\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-\frac{\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{16\,b^2\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^4\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{a\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{3\,b^3\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{\left(-36\,a^2-8\,a\,b-21\,b^2\right)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{48\,b^4\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{\mathrm{Sec}[c+d\,x]^2\,\left(-12\,a^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-13\,a\,b^2\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{3\,b^5\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{\mathrm{Sec}[c+d\,x]^2\,\left(12\,a^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+13\,a\,b^2\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{3\,b^5\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

- **Problem 561: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^5}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 176 leaves, 7 steps) :

$$\frac{3\left(2a^2+b^2\right)\text{ArcSinh}[\text{Tan}[c+d x]]\,\text{Sec}[c+d x]}{2 b^4 d\sqrt{\text{Sec}[c+d x]^2}}+$$

$$\frac{3 a\sqrt{a^2+b^2}\;\text{ArcTanh}\left[\frac{b-a\,\text{Tan}[c+d x]}{\sqrt{a^2+b^2}\,\sqrt{\text{Sec}[c+d x]^2}}\right]\text{Sec}[c+d x]}{b^4 d\sqrt{\text{Sec}[c+d x]^2}}-\frac{3\,\text{Sec}[c+d x]\,(2 a-b\,\text{Tan}[c+d x])}{2 b^3 d}-\frac{\text{Sec}[c+d x]^3}{b d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 709 leaves) :

$$-\frac{(a-i b)(a+i b)\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{b^3 d\,(a+b\,\text{Tan}[c+d x])^2}-\frac{2 a\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{b^3 d\,(a+b\,\text{Tan}[c+d x])^2}-\frac{1}{b^4 d\,(a+b\,\text{Tan}[c+d x])^2}$$

$$6 a\sqrt{a^2+b^2}\;\text{ArcTanh}\left[\frac{\sqrt{a^2+b^2}\left(-b\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+a\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)}{a^2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]+b^2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]}\right]\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2-$$

$$\frac{3\left(2a^2+b^2\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{2 b^4 d\,(a+b\,\text{Tan}[c+d x])^2}+$$

$$\frac{3\left(2a^2+b^2\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right]\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{2 b^4 d\,(a+b\,\text{Tan}[c+d x])^2}+$$

$$\frac{\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{4 b^2 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2(a+b\,\text{Tan}[c+d x])^2}-\frac{2 a\,\text{Sec}[c+d x]^2\,\text{Sin}\left[\frac{1}{2}(c+d x)\right](a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{b^3 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]-\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b\,\text{Tan}[c+d x])^2}-$$

$$\frac{\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{4 b^2 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2(a+b\,\text{Tan}[c+d x])^2}+\frac{2 a\,\text{Sec}[c+d x]^2\,\text{Sin}\left[\frac{1}{2}(c+d x)\right](a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}{b^3 d\left(\text{Cos}\left[\frac{1}{2}(c+d x)\right]+\text{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b\,\text{Tan}[c+d x])^2}$$

- **Problem 566: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sec}[c+d x]^8}{(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 185 leaves, 3 steps) :

$$\frac{3\left(a^2+b^2\right)\left(5a^2+b^2\right)\text{Log}[a+b\,\text{Tan}[c+d x]]}{b^7 d}-\frac{a\left(10a^2+9b^2\right)\text{Tan}[c+d x]}{b^6 d}+$$

$$\frac{3\left(2a^2+b^2\right)\text{Tan}[c+d x]^2}{2 b^5 d}-\frac{a\,\text{Tan}[c+d x]^3}{b^4 d}+\frac{\text{Tan}[c+d x]^4}{4 b^3 d}-\frac{\left(a^2+b^2\right)^3}{2 b^7 d\,(a+b\,\text{Tan}[c+d x])^2}+\frac{6 a\left(a^2+b^2\right)^2}{b^7 d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 530 leaves) :

$$-\frac{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{2\,b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-$$
$$\frac{3\,(5\,a^4+6\,a^2\,b^2+b^4)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}{b^7\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}+$$
$$\frac{3\,(5\,a^4+6\,a^2\,b^2+b^4)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}{b^7\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}+$$
$$\frac{(3\,a^2+b^2)\,\mathrm{Sec}[c+d\,x]^5\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}{b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}+\frac{\mathrm{Sec}[c+d\,x]^7\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}{4\,b^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-$$
$$\frac{2\,\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(5\,a^3\,\mathrm{Sin}[c+d\,x]+4\,a\,b^2\,\mathrm{Sin}[c+d\,x])}{b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-$$
$$\frac{5\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(a^4\,\mathrm{Sin}[c+d\,x]+2\,a^2\,b^2\,\mathrm{Sin}[c+d\,x]+b^4\,\mathrm{Sin}[c+d\,x])}{b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-$$
$$\frac{a\,\mathrm{Sec}[c+d\,x]^5\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,\mathrm{Tan}[c+d\,x]}{b^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$

- **Problem 569: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^2}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 22 leaves, 2 steps):

$$-\frac{1}{2\,b\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

Result (type 3, 58 leaves):

$$\frac{-b\,\mathrm{Sec}[c+d\,x]^2+2\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

- **Problem 570: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cos}[c+d\,x]^2}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 202 leaves, 7 steps):

$$\frac{a\,(a^4+10\,a^2\,b^2-15\,b^4)\,x}{2\,(a^2+b^2)^4}+\frac{2\,b^3\,(5\,a^2-b^2)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^4\,d}+$$
$$\frac{b\,(a^2-2\,b^2)}{2\,(a^2+b^2)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{\mathrm{Cos}[c+d\,x]^2\,(b+a\,\mathrm{Tan}[c+d\,x])}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{a\,b\,(a^2-11\,b^2)}{2\,(a^2+b^2)^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 713 leaves) :

$$-\frac{b^5 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+\frac{a \left(a^4+10 a^2 b^2-15 b^4\right) (c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{2 (a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\left(2 \left(5 i a^{11} b^3+5 a^{10} b^4+14 i a^9 b^5+14 a^8 b^6+12 i a^7 b^7+12 a^6 b^8+2 i a^5 b^9+2 a^4 b^{10}-i a^3 b^{11}-a^2 b^{12}\right)\right.$$
$$\left.(c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left(a^2 (a-i b)^8 (a+i b)^7 d (a+b \operatorname{Tan}[c+d x])^3\right)-$$
$$\frac{2 i \left(5 a^2 b^3-b^5\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{\left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{b \left(3 a^2-b^2\right) \operatorname{Cos}[2 (c+d x)] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{4 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{\left(5 a^2 b^3-b^5\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{\left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{a \left(a^2-3 b^2\right) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \operatorname{Sin}[2 (c+d x)]}{4 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+\frac{5 b^4 \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]}{(a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}$$

- **Problem 571: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cos}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 295 leaves, 8 steps) :

$$\frac{3 a \left(a^6+7 a^4 b^2+35 a^2 b^4-35 b^6\right) x}{8 \left(a^2+b^2\right)^5}+\frac{3 b^5 \left(7 a^2-b^2\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^5 d}+\frac{3 b \left(a^4+5 a^2 b^2-4 b^4\right)}{8 \left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])^2}+$$
$$\frac{\operatorname{Cos}[c+d x]^4 (b+a \operatorname{Tan}[c+d x])}{4 \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^2}+\frac{3 a b \left(a^4+6 a^2 b^2-27 b^4\right)}{8 \left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])}-\frac{\operatorname{Cos}[c+d x]^2 \left(2 b \left(a^2-3 b^2\right)-a \left(3 a^2+11 b^2\right) \operatorname{Tan}[c+d x]\right)}{8 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])^2}$$

Result (type 3, 924 leaves) :

$$-\frac{b^7 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 (a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^3}+\frac{3 a \left(a^6+7 a^4 b^2+35 a^2 b^4-35 b^6\right) (c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{8 (a-i b)^5 (a+i b)^5 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\left(3 \left(7 i a^{13} b^5+7 a^{12} b^6+27 i a^{11} b^7+27 a^{10} b^8+38 i a^9 b^9+38 a^8 b^{10}+22 i a^7 b^{11}+22 a^6 b^{12}+3 i a^5 b^{13}+3 a^4 b^{14}-i a^3 b^{15}-a^2 b^{16}\right) (c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left(a^2 (a-i b)^{10} (a+i b)^9 d (a+b \operatorname{Tan}[c+d x])^3\right)-$$

$$\frac{3 i \left(7 a^2 b^5-b^7\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{\left(a^2+b^2\right)^5 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{b \left(3 a^4+22 a^2 b^2-5 b^4\right) \operatorname{Cos}[2 (c+d x)] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{8 (a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{b \left(3 a^2-b^2\right) \operatorname{Cos}[4 (c+d x)] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{32 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{3 \left(7 a^2 b^5-b^7\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{2 \left(a^2+b^2\right)^5 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{a \left(a^4+4 a^2 b^2-9 b^4\right) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \operatorname{Sin}[2 (c+d x)]}{4 (a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$

$$\frac{a \left(a^2-3 b^2\right) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \operatorname{Sin}[4 (c+d x)]}{32 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+\frac{7 b^6 \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]}{(a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^3}$$

- **Problem 572: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Sec}[c+d x]^7}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 239 leaves, 8 steps):

$$-\frac{5 a \left(4 a^2+3 b^2\right) \operatorname{ArcSinh}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]}{2 b^6 d \sqrt{\operatorname{Sec}[c+d x]^2}}-\frac{5 \sqrt{a^2+b^2} \left(4 a^2+b^2\right) \operatorname{ArcTanh}\left[\frac{b-a \operatorname{Tan}[c+d x]}{\sqrt{a^2+b^2} \sqrt{\operatorname{Sec}[c+d x]^2}}\right] \operatorname{Sec}[c+d x]}{2 b^6 d \sqrt{\operatorname{Sec}[c+d x]^2}}-$$

$$\frac{\operatorname{Sec}[c+d x]^5}{2 b d (a+b \operatorname{Tan}[c+d x])^2}+\frac{5 \operatorname{Sec}[c+d x]^3 (4 a+b \operatorname{Tan}[c+d x])}{6 b^3 d (a+b \operatorname{Tan}[c+d x])}+\frac{5 \operatorname{Sec}[c+d x] \left(4 a^2+b^2-2 a b \operatorname{Tan}[c+d x]\right)}{2 b^5 d}$$

Result (type 3, 688 leaves):

$$\frac{1}{12\,b^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$

$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\left(\frac{6\,b^2\,\left(a^2+b^2\right)^2\,\mathrm{Sin}[c+d\,x]}{a}+\frac{6\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b\,\left(8\,a^2-b^2\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a}+\right.$$

$$2\,b\,\left(36\,a^2+13\,b^2\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+60\,\sqrt{a^2+b^2}\,\left(4\,a^2+b^2\right)\,\mathrm{ArcTanh}\left[\frac{-b+a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$30\,a\,\left(4\,a^2+3\,b^2\right)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2-$$

$$30\,a\,\left(4\,a^2+3\,b^2\right)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$\frac{b^2\,(-9\,a+b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+\frac{2\,b^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\frac{2\,b\,\left(36\,a^2+13\,b^2\right)\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}-\frac{2\,b^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3}+$$

$$\left.\frac{b^2\,(9\,a+b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{2\,b\,\left(36\,a^2+13\,b^2\right)\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)$$

Problem 573: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Sec}[c+d\,x]^5}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 148 leaves, 7 steps):

$$-\frac{3\,a\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{b^4\,d}-\frac{3\,\left(2\,a^2+b^2\right)\,\mathrm{ArcTanh}\left[\frac{b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\right]}{2\,b^4\,\sqrt{a^2+b^2}\,d}-\frac{\mathrm{Sec}[c+d\,x]^3}{2\,b\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{3\,\mathrm{Sec}[c+d\,x]\,(2\,a+b\,\mathrm{Tan}[c+d\,x])}{2\,b^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 396 leaves):

$$\frac{1}{2\,b^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\Bigg(\frac{b^2\,(a^2+b^2)\,\mathrm{Sin}[c+d\,x]}{a}+\frac{(2\,a-b)\,b\,(2\,a+b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a}+2\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$\frac{6\,(2\,a^2+b^2)\,\mathrm{ArcTanh}\Big[\frac{-b+a\,\mathrm{Tan}[\frac{1}{2}\,(c+d\,x)]}{\sqrt{a^2+b^2}}\Big]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\sqrt{a^2+b^2}}+6\,a\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]-\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]$$

$$(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2-6\,a\,\mathrm{Log}\Big[\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]+\mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2+$$

$$\frac{2\,b\,\mathrm{Sin}[\frac{1}{2}\,(c+d\,x)]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\mathrm{Cos}[\frac{1}{2}\,(c+d\,x)]-\mathrm{Sin}[\frac{1}{2}\,(c+d\,x)]}-\frac{2\,b\,\mathrm{Sin}[\frac{1}{2}\,(c+d\,x)]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{\mathrm{Cos}[\frac{1}{2}\,(c+d\,x)]+\mathrm{Sin}[\frac{1}{2}\,(c+d\,x)]}\Bigg)$$

- **Problem 574: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Sec}[c+d\,x]^3}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 95 leaves, 4 steps) :

$$-\frac{\mathrm{ArcTanh}\Big[\frac{b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]}{\sqrt{a^2+b^2}}\Big]}{2\,(a^2+b^2)^{3/2}\,d}-\frac{\mathrm{Sec}[c+d\,x]\,(b-a\,\mathrm{Tan}[c+d\,x])}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

Result (type 3, 132 leaves) :

$$\Bigg((a^2+b^2)\,(-b\,\mathrm{Cos}[c+d\,x]+a\,\mathrm{Sin}[c+d\,x])+2\,\sqrt{a^2+b^2}\,\mathrm{ArcTanh}\Big[\frac{-b+a\,\mathrm{Tan}[\frac{1}{2}\,(c+d\,x)]}{\sqrt{a^2+b^2}}\Big]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\Bigg)\Big/$$

$$\left(2\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

- **Problem 601: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])^3}{(d\,\mathrm{Sec}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 4, 176 leaves, 4 steps) :

$$\frac{2\,a\,(7\,a^2+6\,b^2)\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{15\,d^4\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-$$
$$\frac{2\,\text{Cos}[e+f\,x]^4\,(b-a\,\text{Tan}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^2}{9\,d^4\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{2\,\text{Cos}[e+f\,x]^2\,\left(2\,b\,(5\,a^2+2\,b^2)-a\,(7\,a^2+b^2)\,\text{Tan}[e+f\,x]\right)}{45\,d^4\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}$$

Result (type 4, 372 leaves):

$$\left(\text{Sec}[e+f\,x]^{3/2}\left(\frac{2\,(56\,a^3+48\,a\,b^2)\,\text{EllipticE}\left[\frac{1}{2}\,(e+f\,x),\,2\right]}{\sqrt{\text{Cos}[e+f\,x]}\,\sqrt{\text{Sec}[e+f\,x]}}-\frac{2\,(15\,a^2\,b+7\,b^3)\,\text{Sin}[e+f\,x]^2}{\sqrt{1-\text{Cos}[e+f\,x]^2}\,\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]^2\,(-1+\text{Sec}[e+f\,x]^2)}}\right)\right.$$
$$\left.(a+b\,\text{Tan}[e+f\,x])^3\right)\Big/\left(120\,f\,(d\,\text{Sec}[e+f\,x])^{9/2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\right)+$$
$$\left(\text{Sec}[e+f\,x]^2\left(-\frac{1}{90}\,b\,(15\,a^2+4\,b^2)\,\text{Cos}[e+f\,x]-\frac{1}{360}\,b\,(75\,a^2+11\,b^2)\,\text{Cos}[3\,(e+f\,x)]-\frac{1}{72}\,b\,(3\,a^2-b^2)\,\text{Cos}[5\,(e+f\,x)]+\right.\right.$$
$$\left.\frac{1}{180}\,a\,(19\,a^2-3\,b^2)\,\text{Sin}[e+f\,x]+\frac{1}{360}\,a\,(43\,a^2-21\,b^2)\,\text{Sin}[3\,(e+f\,x)]+\frac{1}{72}\,a\,(a^2-3\,b^2)\,\text{Sin}[5\,(e+f\,x)]\right)$$
$$\left.(a+b\,\text{Tan}[e+f\,x])^3\right)\Big/\left(f\,(d\,\text{Sec}[e+f\,x])^{9/2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\right)$$

- **Problem 603: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f\,x])^{7/2}}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 456 leaves, 17 steps):

$$\frac{2\,d^2\,(d\,\text{Sec}[e+f\,x])^{3/2}}{3\,b\,f}+\frac{(a^2+b^2)^{3/4}\,d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{b^{5/2}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}-\frac{(a^2+b^2)^{3/4}\,d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{b^{5/2}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}+$$
$$\frac{2\,a\,d^2\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{b^2\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}-\frac{2\,a\,d^2\,\text{Cos}[e+f\,x]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]}{b^2\,f}-\frac{1}{b^3\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}$$
$$a\,\sqrt{a^2+b^2}\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}+$$
$$\frac{1}{b^3\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}a\,\sqrt{a^2+b^2}\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}$$

Result (type 4, 31 275 leaves): Display of huge result suppressed!

- **Problem 604: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Sec}[e+f\,x])^{5/2}}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 396 leaves, 17 steps):

$$\frac{2\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}}{b\,f}-\frac{\left(a^2+b^2\right)^{1/4}\,d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{b^{3/2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}-$$
$$\frac{\left(a^2+b^2\right)^{1/4}\,d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{b^{3/2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}-\frac{2\,a\,d^2\,\text{EllipticF}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{b^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}+$$
$$\frac{1}{b^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}a\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{-\text{Tan}[e+f\,x]^2}+$$
$$\frac{1}{b^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}a\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{-\text{Tan}[e+f\,x]^2}$$

Result (type 4, 40 058 leaves): Display of huge result suppressed!

- **Problem 605: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Sec}[e+f\,x])^{3/2}}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 334 leaves, 13 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{\sqrt{b}\,\left(a^2+b^2\right)^{1/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{\sqrt{b}\,\left(a^2+b^2\right)^{1/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}-$$
$$\left(a\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$
$$\left(b\,\sqrt{a^2+b^2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)+$$
$$\left(a\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/\left(b\,\sqrt{a^2+b^2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)$$

Result (type 4, 6301 leaves):

$$-\Bigg(\Bigg(\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{\mathrm{Sec}[e+f x]}\,(d\,\mathrm{Sec}[e+f x])^{3/2}$$

$$\Bigg(4 a^2 (a-\mathrm{i}\, b)\, b\sqrt{a^2+b^2}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\sqrt{\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4}\ +$$

$$2 a^2 b\left(-2\,\mathrm{i}\, b\sqrt{a^2+b^2}\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+\right.$$

$$a\left(a-\mathrm{i}\, b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+$$

$$\left.a\left(-a+\mathrm{i}\, b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]\right)$$

$$\sqrt{2\,\mathrm{i}\,\mathrm{Cos}[e+f x]-2\,\mathrm{Sin}[e+f x]}\ \sqrt{\mathrm{Cos}[e+f x]\,(\mathrm{Cos}[e+f x]+\mathrm{i}\,\mathrm{Sin}[e+f x])}\ \left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2-$$

$$a^2\Bigg(-\left(\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]-$$

$$\left.(1-\mathrm{i})\, a\,\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]\right)+$$

$$\left(\mathrm{i}\, a+b-\sqrt{a^2+b^2}\right)\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\Bigg)\Bigg)\Bigg/$$

$$\Bigg(2\,a^3\,(a-i\,b)\,b\,\sqrt{a^2+b^2}\,f\,\Bigg(\frac{1}{2\,a^3\,(a-i\,b)\,b\,\sqrt{a^2+b^2}}\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]\sqrt{\text{Sec}[e+f\,x]}\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]$$

$$\Bigg(4\,a^2\,(a-i\,b)\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right], -1\right]\sqrt{\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4}\,+$$

$$2\,a^2\,b\,\Bigg(-2\,i\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]+$$

$$a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]+$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2-$$

$$a^2\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg) +$$

$$\left(i\,a+b-\sqrt{a^2+b^2}\right)\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\Bigg) -$$

$$\frac{1}{4\,a^3\,(a-i\,b)\,b\,\sqrt{a^2+b^2}}\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Sec}[e+f\,x]^{3/2}\,\text{Sin}[e+f\,x]\Bigg(4\,a^2\,(a-i\,b)\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right], -1\right]$$

$$\sqrt{\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4} + 2\,a^2\,b\Bigg(-2\,i\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] +$$

$$a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] +$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2 -$$

$$a^2\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\,a\,\text{EllipticPi}\Big[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]\Bigg)+$$

$$\left(i\,a+b-\sqrt{a^2+b^2}\right)\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]-$$

$$(1-i)\,a\,\text{EllipticPi}\Big[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]\Bigg)\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\ \sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\ \left(i+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\right)^2\Bigg)-$$

$$\frac{1}{2\,a^3\,(a-i\,b)\,b\,\sqrt{a^2+b^2}}\,\text{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\sqrt{\text{Sec}[e+f\,x]}\ \Bigg(2\,a^2\,b\,\Bigg(-2\,i\,b\,\sqrt{a^2+b^2}\ \text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],$$

$$2\Big]+a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\Big[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]+$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\Big[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]\Bigg)$$

$$\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\ \sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\ \left(i+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\right)-$$

$$a^2\,\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\Big],\ 2\Big]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)+$$

$$\left(i\,a+b-\sqrt{a^2+b^2}\right)\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)+$$

$$\frac{1}{\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}}\,a^2\,b\,\Bigg(-2\,i\,b\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]+a$$

$$\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]+a$$

$$\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,(-2\,\text{Cos}[e+f\,x]-2\,i\,\text{Sin}[e+f\,x])\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2-$$

$$\frac{1}{2\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}}\,a^2\,\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)$$

$$\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg) + \left(i\, a+b-\sqrt{a^2+b^2}\right)$$

$$\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)\Bigg)$$

$$\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,(-2\,\text{Cos}[e+f\,x]-2\,i\,\text{Sin}[e+f\,x])\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2 +$$

$$\frac{1}{\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}}\, a^2\, b \Bigg(-2\, i\, b\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] + a$$

$$\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] + a$$

$$\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,(\text{Cos}[e+f\,x]\,(i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])-(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])\,\text{Sin}[e+f\,x])$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2 - \frac{1}{2\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}}$$

$$a^2\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right], 2\right]\Bigg) + \left(i\, a+b-\sqrt{a^2+b^2}\right)$$

$$\left(a+b-\sqrt{a^2+b^2}\right)\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\right.\right.$$

$$\left.\left.\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)\right)\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}$$

$$(\text{Cos}[e+f\,x]\,(i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])-(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])\,\text{Sin}[e+f\,x])\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2+$$

$$2\,a^2\,b\,\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}$$

$$\left(-\left(i\,b\,\sqrt{a^2+b^2}\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])\right)\Big/\left(\sqrt{2}\,\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])}\,\sqrt{i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}\right.\right.$$

$$\left.\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\right)+\left(a\left(a-i\,b+\sqrt{a^2+b^2}\right)(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])\right)\Big/$$

$$\left(2\sqrt{2}\,\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])}\,\sqrt{i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}\,\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\right.$$

$$\left.\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)(1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{a+b-\sqrt{a^2+b^2}}\right)\right)+\left(a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\right.$$

$$\left.(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])\right)\Big/\left(2\sqrt{2}\,\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])}\,\sqrt{i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}\right.$$

$$\left.\left.\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)(1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2-a^2\,\sqrt{2\,i\,\text{Cos}[e+f\,x]-2\,\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}$$

$$\Bigg(-\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\Bigg(\Big(\left(a+b-\sqrt{a^2+b^2}\right)(\text{Cos}[e+f x]+i\,\text{Sin}[e+f x])\Big)\Big/$$

$$\left(2\sqrt{2}\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f x]-\text{Sin}[e+f x])}\sqrt{i\,\text{Cos}[e+f x]-\text{Sin}[e+f x]}\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}\right)-$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\,(\text{Cos}[e+f x]+i\,\text{Sin}[e+f x])\right)\Big/\Bigg(\sqrt{2}\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f x]-\text{Sin}[e+f x])}\sqrt{i\,\text{Cos}[e+f x]-\text{Sin}[e+f x]}$$

$$\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)(1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x])}{a+b-\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)+$$

$$\left(i\,a+b-\sqrt{a^2+b^2}\right)\left(a+b-\sqrt{a^2+b^2}\right)\Bigg(\Big(\left(a+b+\sqrt{a^2+b^2}\right)(\text{Cos}[e+f x]+i\,\text{Sin}[e+f x])\Big)\Big/$$

$$\left(2\sqrt{2}\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f x]-\text{Sin}[e+f x])}\sqrt{i\,\text{Cos}[e+f x]-\text{Sin}[e+f x]}\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}\right)-$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\,(\text{Cos}[e+f x]+i\,\text{Sin}[e+f x])\right)\Big/\Bigg(\sqrt{2}\sqrt{1+\frac{1}{2}(-1+i\,\text{Cos}[e+f x]-\text{Sin}[e+f x])}\sqrt{i\,\text{Cos}[e+f x]-\text{Sin}[e+f x]}$$

$$\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)(1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x])}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\Bigg)$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2+\Bigg(2a^2(a-i\,b)\,b\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]$$

$$\left(-\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4\text{Sin}[e+f x]+2\,\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Bigg)\Big/\left(\sqrt{\text{Cos}[e+f x]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4}+\right.$$

$$\frac{2\,a^2\,(a-\mathrm{i}\,b)\,b\,\sqrt{a^2+b^2}\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}}{\sqrt{1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\,\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\Bigg)\Bigg)\,(a+b\,\mathrm{Tan}[e+f\,x])\Bigg)\Bigg)$$

■ **Problem 606: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{d\,\mathrm{Sec}[e+f\,x]}}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 4, 324 leaves, 14 steps):

$$-\frac{\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}}{\left(a^2+b^2\right)^{3/4}f\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}-\frac{\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}}{\left(a^2+b^2\right)^{3/4}f\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}+$$

$$\frac{a\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{-\mathrm{Tan}[e+f\,x]^2}}{\left(a^2+b^2\right)f\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}+$$

$$\frac{a\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\sqrt{d\,\mathrm{Sec}[e+f\,x]}\,\sqrt{-\mathrm{Tan}[e+f\,x]^2}}{\left(a^2+b^2\right)f\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}$$

Result (type 4, 4648 leaves):

$$-\Bigg(\Bigg(2\,\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}\,\sqrt{d\,\mathrm{Sec}[e+f\,x]}$$

$$\left(\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]\right)^{3/2}\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],\,-1\right]+$$

$$\frac{1}{\sqrt{2}\,(a-\mathrm{i}\,b)\,\sqrt{a^2+b^2}\,\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}}\Bigg(-2\,\mathrm{i}\,b\,\sqrt{a^2+b^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],\,2\right]+$$

$$a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\Bigg)$$

$$\left.\left.\sqrt{i\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+i\,\text{Sin}[e+f\,x])}\,\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right)\right)\Big/$$

$$\left(a\,f\sqrt{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}\,(a+b\,\text{Tan}[e+f\,x])\left(-\frac{1}{a}2\sqrt{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}\sqrt{\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4}\right.\right.$$

$$\left(\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Sec}[e+f\,x]\right)^{3/2}\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]+\right.$$

$$\frac{1}{\sqrt{2}\,(a-i\,b)\sqrt{a^2+b^2}\sqrt{\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4}}\left(-2\,i\,b\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],\right.\right.$$

$$2\Big]+a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\Bigg)$$

$$\left.\sqrt{i\,\mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}\,\sqrt{\mathrm{Cos}[e+f x]\,(\mathrm{Cos}[e+f x]+i\,\mathrm{Sin}[e+f x])}\,\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\right)+$$

$$\frac{1}{a\sqrt{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}}\sqrt{\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4}\,\left(\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Sec}[e+f x]\right)^{3/2}\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]+\right.$$

$$\frac{1}{\sqrt{2}\,(a-i\,b)\sqrt{a^2+b^2}\sqrt{\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4}}\left(-2\,i\,b\sqrt{a^2+b^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-i\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+\right.$$

$$a\left(a-i\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-i\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+a$$

$$\left.\left(-a+i\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-i\,\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]\right)$$

$$\left.\sqrt{i\,\mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}\,\sqrt{\mathrm{Cos}[e+f x]\,(\mathrm{Cos}[e+f x]+i\,\mathrm{Sin}[e+f x])}\,\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\right)-$$

$$\frac{1}{a\sqrt{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}\sqrt{\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4}}\left(\mathrm{Cos}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Sec}[e+f x]\right)^{3/2}$$

$$\left(-\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4\mathrm{Sin}[e+f x]+2\,\mathrm{Cos}[e+f x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^4\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right],-1\right]+\right.$$

$$\frac{1}{\sqrt{2}\,(a-\mathrm{i}\,b)\,\sqrt{a^2+b^2}\,\sqrt{\text{Cos}[e+fx]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^4}}\left(-2\,\mathrm{i}\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+fx]+\text{Sin}[e+fx]}}{\sqrt{2}}\right],2\right]+\right.$$

$$a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+fx]+\text{Sin}[e+fx]}}{\sqrt{2}}\right],2\right]+a$$

$$\left.\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+fx]+\text{Sin}[e+fx]}}{\sqrt{2}}\right],2\right]\right)$$

$$\left.\sqrt{\mathrm{i}\,\text{Cos}[e+fx]-\text{Sin}[e+fx]}\,\sqrt{\text{Cos}[e+fx]\,(\text{Cos}[e+fx]+\mathrm{i}\,\text{Sin}[e+fx])}\,\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2\right)-$$

$$\frac{1}{a\sqrt{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}}\,2\sqrt{\text{Cos}[e+fx]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^4}\,\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Sec}[e+fx]\right)^{3/2}\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left(\frac{1}{\sqrt{2}\,(a-\mathrm{i}\,b)\,\sqrt{a^2+b^2}\,\sqrt{\text{Cos}[e+fx]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^4}}\left(-2\,\mathrm{i}\,b\,\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+fx]+\text{Sin}[e+fx]}}{\sqrt{2}}\right],2\right]+\right.\right.$$

$$a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+fx]+\text{Sin}[e+fx]}}{\sqrt{2}}\right],2\right]+a$$

$$\left(-a+i b+\sqrt{a^2+b^2}\right) \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]} \sqrt{\text{Cos}[e+f x](\text{Cos}[e+f x]+i \text{Sin}[e+f x])} \left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$\Bigg(\Bigg(-2 i b \sqrt{a^2+b^2} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]+a\left(a-i b+\sqrt{a^2+b^2}\right)$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]+$$

$$a\left(-a+i b+\sqrt{a^2+b^2}\right) \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$(-\text{Cos}[e+f x]-i \text{Sin}[e+f x]) \sqrt{\text{Cos}[e+f x](\text{Cos}[e+f x]+i \text{Sin}[e+f x])} \left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\Bigg) \Big/$$

$$\left(2 \sqrt{2}(a-i b) \sqrt{a^2+b^2} \sqrt{\text{Cos}[e+f x] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^4} \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}\right)+$$

$$\Bigg(\Bigg(-2 i b \sqrt{a^2+b^2} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]+a\left(a-i b+\sqrt{a^2+b^2}\right)$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]+a\left(-a+i b+\sqrt{a^2+b^2}\right)$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]\Bigg) \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}$$

$$(\mathrm{Cos}[e+f x]\ (i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x])-(\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])\ \mathrm{Sin}[e+f x])\ \left(i+\mathrm{Tan}\left[\frac{1}{2}\ (e+f x)\right]\right)^2\Bigg)\Bigg/$$

$$\left(2\sqrt{2}\ (a-i\ b)\ \sqrt{a^2+b^2}\ \sqrt{\mathrm{Cos}[e+f x]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f x)\right]^4}\ \sqrt{\mathrm{Cos}[e+f x]\ (\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])}\right)+$$

$$\frac{1}{\sqrt{2}\ (a-i\ b)\ \sqrt{a^2+b^2}\ \sqrt{\mathrm{Cos}[e+f x]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f x)\right]^4}}\sqrt{i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}\ \sqrt{\mathrm{Cos}[e+f x]\ (\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])}$$

$$\Bigg(-\left(i\ b\sqrt{a^2+b^2}\ (\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])\right)\Bigg/\Bigg(\sqrt{2}\ \sqrt{1+\frac{1}{2}\ (-1+i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x])}\ \sqrt{i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}$$

$$\sqrt{1-i\ \mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\Bigg)+\left(a\left(a-i\ b+\sqrt{a^2+b^2}\right)\ (\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])\right)\Bigg/$$

$$\Bigg(2\sqrt{2}\ \sqrt{1+\frac{1}{2}\ (-1+i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x])}\ \sqrt{i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}\ \sqrt{1-i\ \mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}$$

$$\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)\ (1-i\ \mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x])}{a+b-\sqrt{a^2+b^2}}\right)\Bigg)+\Bigg(a\left(-a+i\ b+\sqrt{a^2+b^2}\right)$$

$$(\mathrm{Cos}[e+f x]+i\ \mathrm{Sin}[e+f x])\Bigg)\Bigg/\Bigg(2\sqrt{2}\ \sqrt{1+\frac{1}{2}\ (-1+i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x])}\ \sqrt{i\ \mathrm{Cos}[e+f x]-\mathrm{Sin}[e+f x]}$$

$$\sqrt{1-i\ \mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\ \left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\ (1-i\ \mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x])}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\Bigg)$$

$$\left(i+\mathrm{Tan}\left[\frac{1}{2}\ (e+f x)\right]\right)^2-\frac{1}{2\sqrt{2}\ (a-i\ b)\ \sqrt{a^2+b^2}\ \left(\mathrm{Cos}[e+f x]\ \mathrm{Sec}\left[\frac{1}{2}\ (e+f x)\right]^4\right)^{3/2}}$$

$$\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\right.$$

$$\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)\sqrt{\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x]}$$

$$\sqrt{\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])}\;\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\left(-\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4\mathrm{Sin}[e+f\,x]+2\right.$$

$$\left.\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)+\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\sqrt{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\Bigg)-$$

$$\frac{1}{a\sqrt{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}}\,3\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4}\sqrt{\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]}\;\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)$$

$$\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]+\frac{1}{\sqrt{2}\,(a-\mathrm{i}\,b)\sqrt{a^2+b^2}\sqrt{\mathrm{Cos}[e+f\,x]\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^4}}\right.$$

$$\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\right.$$

$$\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+a$$

$$\left(-a+i b+\sqrt{a^2+b^2}\right) \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right], 2\right]\Bigg)$$

$$\sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]} \sqrt{\text{Cos}[e+f x] (\text{Cos}[e+f x]+i \text{Sin}[e+f x])} \left(i+\text{Tan}\left[\frac{1}{2} (e+f x)\right]\right)^2\Bigg)$$

$$\left(-\text{Cos}\left[\frac{1}{2} (e+f x)\right] \text{Sec}[e+f x] \text{Sin}\left[\frac{1}{2} (e+f x)\right]+\text{Cos}\left[\frac{1}{2} (e+f x)\right]^2 \text{Sec}[e+f x] \text{Tan}[e+f x]\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 607: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{d \text{Sec}[e+f x]} (a+b \text{Tan}[e+f x])} \, dx$$

Optimal (type 4, 451 leaves, 17 steps):

$$\frac{b^{3/2} \text{ArcTan}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{5/4} f \sqrt{d \text{Sec}[e+f x]}}-\frac{b^{3/2} \text{ArcTanh}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{5/4} f \sqrt{d \text{Sec}[e+f x]}}+$$

$$\frac{2 a \text{EllipticE}\left[\frac{1}{2} \text{ArcTan}[\text{Tan}[e+f x]], 2\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right) f \sqrt{d \text{Sec}[e+f x]}}-\frac{2 a \text{Tan}[e+f x]}{\left(a^2+b^2\right) f \sqrt{d \text{Sec}[e+f x]}}-$$

$$\left(a b \text{Cot}[e+f x] \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] \left(\text{Sec}[e+f x]^2\right)^{1/4} \sqrt{-\text{Tan}[e+f x]^2}\right) \Big/$$

$$\left(\left(a^2+b^2\right)^{3/2} f \sqrt{d \text{Sec}[e+f x]}\right)+$$

$$\left(a b \text{Cot}[e+f x] \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] \left(\text{Sec}[e+f x]^2\right)^{1/4} \sqrt{-\text{Tan}[e+f x]^2}\right) \Big/ \left(\left(a^2+b^2\right)^{3/2} f \sqrt{d \text{Sec}[e+f x]}\right)+$$

$$\frac{2 (b+a \text{Tan}[e+f x])}{\left(a^2+b^2\right) f \sqrt{d \text{Sec}[e+f x]}}$$

Result (type 4, 34 824 leaves): Display of huge result suppressed!

Problem 608: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{(d\,\mathrm{Sec}[e+f\,x])^{3/2}\,(a+b\,\mathrm{Tan}[e+f\,x])}\,dx$$

Optimal (type 4, 422 leaves, 17 steps):

$$-\frac{b^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\left(\mathrm{Sec}[e+f\,x]^2\right)^{3/4}}{\left(a^2+b^2\right)^{7/4}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}}-\frac{b^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\left(\mathrm{Sec}[e+f\,x]^2\right)^{3/4}}{\left(a^2+b^2\right)^{7/4}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}}+\frac{2\,a\,\mathrm{EllipticF}\left[\frac{1}{2}\,\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]],\,2\right]\left(\mathrm{Sec}[e+f\,x]^2\right)^{3/4}}{3\left(a^2+b^2\right)f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}}+$$

$$\left(a\,b^2\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\left(\mathrm{Sec}[e+f\,x]^2\right)^{3/4}\sqrt{-\mathrm{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2 f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}\right)+$$

$$\left(a\,b^2\,\mathrm{Cot}[e+f\,x]\,\mathrm{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\left(\mathrm{Sec}[e+f\,x]^2\right)^{3/4}\sqrt{-\mathrm{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2 f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}\right)+\frac{2\,(b+a\,\mathrm{Tan}[e+f\,x])}{3\left(a^2+b^2\right)f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}}$$

Result (type 4, 11 857 leaves):

$$\frac{\mathrm{Sec}[e+f\,x]^3\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\left(\frac{b}{3\,(a-i\,b)\,(a+i\,b)}+\frac{b\,\mathrm{Cos}[2\,(e+f\,x)]}{3\,(a-i\,b)\,(a+i\,b)}+\frac{a\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,(a-i\,b)\,(a+i\,b)}\right)}{f\,(d\,\mathrm{Sec}[e+f\,x])^{3/2}\,(a+b\,\mathrm{Tan}[e+f\,x])}+$$

$$\left(2\,\mathrm{Sec}[e+f\,x]^{5/2}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\left(\frac{a^2}{3\,(a-i\,b)\,(a+i\,b)\,\sqrt{\mathrm{Sec}[e+f\,x]}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])}+\right.\right.$$

$$\left.\frac{b^2}{(a-i\,b)\,(a+i\,b)\,\sqrt{\mathrm{Sec}[e+f\,x]}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])}+\frac{a\,b\,\sqrt{\mathrm{Sec}[e+f\,x]}\,\mathrm{Sin}[e+f\,x]}{3\,(a-i\,b)\,(a+i\,b)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])}\right)$$

$$\sqrt{\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\left(a^3\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+3\,a\,b^2\,\text{EllipticF}\left[\right.\right.$$

$$\left.\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\left(3\,a\,b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-\right.\right.$$

$$\left.(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Big/\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3\,a\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-\right.\right.$$

$$(1-\mathrm{i})\, a\, \text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] \sqrt{-\frac{2+2\,\mathrm{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Big/ \left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\, a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\Bigg(3\, a\, b^4\Bigg(\left(a+b+\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right]-$$

$$(1-\mathrm{i})\, a\, \text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] \sqrt{-\frac{2+2\,\mathrm{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Big/ \left(\sqrt{a^2+b^2}\left(\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,a\,b^3\left(-i\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]+\right.\right.$$

$$\left.(1+i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Bigg/\left(\left(a+b+\sqrt{a^2+b^2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)\right)\Bigg/$$

$$\left(3\,a^2\,(a-i\,b)\,(a+i\,b)\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\left(\frac{1}{3\,a^2\,(a-i\,b)\,(a+i\,b)}\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{3/2}\right.\right.$$

$$\left(a^3\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}+3\,a\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]\right.$$

$$\sqrt{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\ +\left(3\,a\,b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\right],\,2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\right],\,2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}$$

$$\left.\left(i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\right)\Big/\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)-$$

$$\left(3\,a\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\right],\,2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\right],\,2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(3\,a\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\right.\right.\right.\right.$$

$$\left.\left.\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\mathrm{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\Bigg)$$

$$\left.\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Bigg/\left(\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\right.$$

$$\left.\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(3\,a\,b^3\left(-i\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]+\right.\right.$$

$$\left.(1+i)\,a\,\mathrm{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\left(a+b+\sqrt{a^2+b^2}\right)\left(a-\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\frac{1}{3 a^2 (a-\mathbb{i} b)(a+\mathbb{i} b)} 2\sqrt{\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\left(-\frac{a^3\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}-\right.$$

$$\frac{3 a b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{2\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}-$$

$$\left(3 a b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathbb{i})\,a\,\text{EllipticPi}\left[\frac{(1+\mathbb{i})\left(a+\mathbb{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{-\frac{2+2\,\mathbb{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathbb{i}\,a-b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)+$$

$$\left(3\,a\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Big/\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{3/2}\right)-$$

$$\left(3\,a\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(2\sqrt{a^2+b^2}\left(\text{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)-$$

$$\left(3\,a\,b^3\left(-\text{i}\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]+(1+\text{i})\,a\,\text{EllipticPi}\left[\frac{(1+\text{i})\left(a-\text{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{-\frac{2+2\,\text{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(2\left(a+b+\sqrt{a^2+b^2}\right)\left(a-\text{i}\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)+\frac{a^3\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}+$$

$$\frac{3\,a\,b^2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}+\left(3\,a\,b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\text{i})\,a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\Bigg]\ \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{-\frac{2+2 i \,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Bigg/ \left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) -$$

$$\Bigg(3 a b^4 \Bigg(\left(a+b-\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] - (1-i)\, a\, \text{EllipticPi}\Bigg[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\Bigg]\Bigg)\ \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\ \left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Bigg/ \left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\left(3 a b^4 \left(\left(a+b+\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] - (1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{-\frac{2+2 i\, \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}} \left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(\sqrt{a^2+b^2}\left(i a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\left(3 a b^3 \left(-i\left(a+b+\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] + (1+i)\, a\, \text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \sqrt{-\frac{2+2 i\, \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Big/\left(\left(a+b+\sqrt{a^2+b^2}\right)\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3 a b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\,\mathrm{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\mathrm{i}\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3 a b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3 a b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(3\,a\,b^3\left(-\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]+(1+\mathrm{i})\,a\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{\mathrm{i}\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}\right)\right)\Big/$$

$$\left(2\left(a+b+\sqrt{a^2+b^2}\right)\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(3\,a\,b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\right)\Bigg/$$

$$\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3\,a\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]-(1-i)\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\right)\Bigg/$$

$$\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,a\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,a\,b^3\left(-\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]+(1+\mathrm{i})\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\Bigg)\Bigg/$$

$$\left(2\left(a+b+\sqrt{a^2+b^2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\Bigg(3 a b^3\sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}$$

$$\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$

$$\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(1-\frac{i\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-\Bigg(3 a b^4\sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$

$$\left.\left(1-\frac{i\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\Bigg)\Bigg)\Bigg/\left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\right.$$

$$\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(3\,a\,b^4\sqrt{-\frac{2+2\,\mathrm{i}\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right.$$

$$\sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\right.$$

$$\left.\left.\left.\left(1-\frac{\mathrm{i}\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\right)\right)\right)\Big/\left(\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\right.$$

$$\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(3\,a\,b^3\sqrt{-\frac{2+2\,\mathrm{i}\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(\mathrm{i}+\operatorname{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right.$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}} \left(-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}+\right.$$

$$\left(\left(\frac{1}{2}+\frac{i}{2}\right) a \left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right) \Big/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$

$$\left.\left.\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(1-\frac{i\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right) \Big/$$

$$\left.\left(\left(a+b+\sqrt{a^2+b^2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)\right)\right)(a+b\,\text{Tan}[e+f x])\Bigg)$$

■ **Problem 609: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(d\,\text{Sec}[e+f x])^{5/2}(a+b\,\text{Tan}[e+f x])}\,dx$$

Optimal (type 4, 568 leaves, 18 steps) :

$$\frac{b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{9/4} d^2 f \sqrt{d\,\text{Sec}[e+f x]}}-\frac{b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{9/4} d^2 f \sqrt{d\,\text{Sec}[e+f x]}}+$$

$$\frac{2 a \left(3 a^2+8 b^2\right) \text{EllipticE}\left[\frac{1}{2}\text{ArcTan}[\text{Tan}[e+f x]],2\right]\left(\text{Sec}[e+f x]^2\right)^{1/4}}{5\left(a^2+b^2\right)^2 d^2 f \sqrt{d\,\text{Sec}[e+f x]}}-\frac{2 a \left(3 a^2+8 b^2\right)\text{Tan}[e+f x]}{5\left(a^2+b^2\right)^2 d^2 f \sqrt{d\,\text{Sec}[e+f x]}}-$$

$$\left(a\, b^3\, \text{Cot}[e+f x]\, \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right]\left(\text{Sec}[e+f x]^2\right)^{1/4}\sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^{5/2} d^2 f \sqrt{d\,\text{Sec}[e+f x]}\right)+$$

$$\left(a\, b^3\, \text{Cot}[e+f x]\, \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right]\left(\text{Sec}[e+f x]^2\right)^{1/4}\sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^{5/2} d^2 f \sqrt{d\,\text{Sec}[e+f x]}\right)+\frac{2\,\text{Cos}[e+f x]^2\,(b+a\,\text{Tan}[e+f x])}{5\left(a^2+b^2\right) d^2 f \sqrt{d\,\text{Sec}[e+f x]}}+\frac{2\left(5 b^3+a\left(3 a^2+8 b^2\right)\text{Tan}[e+f x]\right)}{5\left(a^2+b^2\right)^2 d^2 f \sqrt{d\,\text{Sec}[e+f x]}}$$

Result (type 4, 33 345 leaves) : Display of huge result suppressed !

- **Problem 610: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Sec}[e+f x])^{7/2}}{(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 4, 480 leaves, 17 steps) :

$$-\frac{3\,a\,d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{2\,b^{5/2}\,\left(a^2+b^2\right)^{1/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}+\frac{3\,a\,d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{2\,b^{5/2}\,\left(a^2+b^2\right)^{1/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}-$$

$$\frac{3\,d^2\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{b^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}+\frac{3\,d^2\,\text{Cos}[e+f\,x]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]}{b^2\,f}+$$

$$\left(3\,a^2\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,b^3\,\sqrt{a^2+b^2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)-$$

$$\left(3\,a^2\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,b^3\,\sqrt{a^2+b^2}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)-\frac{d^2\,(d\,\text{Sec}[e+f\,x])^{3/2}}{b\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 31 777 leaves) : Display of huge result suppressed!

- **Problem 611: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f\,x])^{5/2}}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 440 leaves, 17 steps) :

$$\frac{a\,d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\sqrt{d\,\text{Sec}[e+f x]}}{2\,b^{3/2}\left(a^2+b^2\right)^{3/4} f\left(\text{Sec}[e+f x]^2\right)^{1/4}}+$$

$$\frac{a\,d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\sqrt{d\,\text{Sec}[e+f x]}}{2\,b^{3/2}\left(a^2+b^2\right)^{3/4} f\left(\text{Sec}[e+f x]^2\right)^{1/4}}+\frac{d^2\,\text{EllipticF}\left[\frac{1}{2}\text{ArcTan}[\text{Tan}[e+f x]],2\right]\sqrt{d\,\text{Sec}[e+f x]}}{b^2 f\left(\text{Sec}[e+f x]^2\right)^{1/4}}-$$

$$\left(a^2\,d^2\,\text{Cot}[e+f x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right]\sqrt{d\,\text{Sec}[e+f x]}\,\sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(2\,b^2\left(a^2+b^2\right) f\left(\text{Sec}[e+f x]^2\right)^{1/4}\right)-$$

$$\left(a^2\,d^2\,\text{Cot}[e+f x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right]\sqrt{d\,\text{Sec}[e+f x]}\,\sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(2\,b^2\left(a^2+b^2\right) f\left(\text{Sec}[e+f x]^2\right)^{1/4}\right)-\frac{d^2\sqrt{d\,\text{Sec}[e+f x]}}{b\,f\,(a+b\,\text{Tan}[e+f x])}$$

Result (type 4, 3091 leaves) :

$$\frac{(d\,\text{Sec}[e+f x])^{5/2}\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\left(-\frac{1}{a\,b}+\frac{\text{Sin}[e+f x]}{a\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])}\right)}{f\,(a+b\,\text{Tan}[e+f x])^2}-$$

$$\Bigg(\Bigg(-2\,i\,b\sqrt{a^2+b^2}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+$$

$$a\left(a-i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+$$

$$a\left(-a+i\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i\,\text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]\Bigg)(d\,\text{Sec}[e+f x])^{5/2}$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2\text{Sec}[e+f x]}\,\sqrt{i\,\text{Cos}[e+f x]-\text{Sin}[e+f x]}\,\sqrt{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+i\,\text{Sin}[e+f x])}\,\text{Sin}[e+f x]$$

$$\left.(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right)\Big/\left(4\,(a-\mathrm{i}\,b)\,b^3\sqrt{a^2+b^2}\,f\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}\,(a+b\,\mathrm{Tan}[e+f\,x])^2\right.$$

$$\left(-\frac{1}{2\,(a-\mathrm{i}\,b)\,b^2\sqrt{a^2+b^2}\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}}\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+\right.\right.$$

$$a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$

$$\left.a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2$$

$$\sqrt{\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x]}\,\sqrt{\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])}\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)-$$

$$\frac{1}{4\,(a-\mathrm{i}\,b)\,b^2\sqrt{a^2+b^2}\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}\,\sqrt{\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x]}}\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],\right.\right.$$

$$\left.2\right]+a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$

$$\left.a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)$$

$$\sqrt{\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]}\,(-\mathrm{Cos}[e+f\,x]-\mathrm{i}\,\mathrm{Sin}[e+f\,x])\sqrt{\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])}\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2+$$

$$\frac{1}{4\,(a-\mathrm{i}\,b)\,b^2\sqrt{a^2+b^2}}\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+\right.$$
$$a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$
$$\left.a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)$$
$$\sqrt{\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]}\;\sqrt{\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x]}\;\sqrt{\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])}$$
$$\mathrm{Sin}[e+f\,x]\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2-\left(\left(\left(-2\,\mathrm{i}\,b\sqrt{a^2+b^2}\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+\right.\right.\right.$$
$$a\left(a-\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]+$$
$$\left.a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{2}}\right],2\right]\right)$$
$$\sqrt{\mathrm{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Sec}[e+f\,x]}\;\sqrt{\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x]}$$
$$\left.(\mathrm{Cos}[e+f\,x]\,(\mathrm{i}\,\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x])-(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])\,\mathrm{Sin}[e+f\,x])\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right)\Big/$$
$$\left(4\,(a-\mathrm{i}\,b)\,b^2\sqrt{a^2+b^2}\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}\;\sqrt{\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])}\right)-\frac{1}{2\,(a-\mathrm{i}\,b)\,b^2\sqrt{a^2+b^2}\sqrt{\frac{1}{1+\mathrm{Cos}[e+f\,x]}}}$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Sec}[e+f x]}\ \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}\ \sqrt{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+i \text{Sin}[e+f x])}$$

$$\left(-\left(i b \sqrt{a^2+b^2}\ (\text{Cos}[e+f x]+i \text{Sin}[e+f x])\right)\Big/\left(\sqrt{2}\ \sqrt{1+\frac{1}{2}(-1+i \text{Cos}[e+f x]-\text{Sin}[e+f x])}\ \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}\right.\right.$$

$$\left.\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}\right)+\left(a\left(a-i b+\sqrt{a^2+b^2}\right)(\text{Cos}[e+f x]+i \text{Sin}[e+f x])\right)\Big/$$

$$\left(2\sqrt{2}\ \sqrt{1+\frac{1}{2}(-1+i \text{Cos}[e+f x]-\text{Sin}[e+f x])}\ \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}\ \sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}\right.$$

$$\left.\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)(1-i \text{Cos}[e+f x]+\text{Sin}[e+f x])}{a+b-\sqrt{a^2+b^2}}\right)\right)+\left(a\left(-a+i b+\sqrt{a^2+b^2}\right)(\text{Cos}[e+f x]+i \text{Sin}[e+f x])\right)\Big/$$

$$\left(2\sqrt{2}\ \sqrt{1+\frac{1}{2}(-1+i \text{Cos}[e+f x]-\text{Sin}[e+f x])}\ \sqrt{i \text{Cos}[e+f x]-\text{Sin}[e+f x]}\ \sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}\right.$$

$$\left.\left.\left(1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)(1-i \text{Cos}[e+f x]+\text{Sin}[e+f x])}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2-\frac{1}{4\,(a-i b)\,b^2\sqrt{a^2+b^2}\ \sqrt{\frac{1}{1+\text{Cos}[e+f x]}}\ \sqrt{\text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Sec}[e+f x]}}$$

$$\left(-2 i b\sqrt{a^2+b^2}\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+\right.$$

$$a\left(a-i b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{1-i \text{Cos}[e+f x]+\text{Sin}[e+f x]}}{\sqrt{2}}\right],2\right]+$$

$$a\left(-a+\mathrm{i}\,b+\sqrt{a^2+b^2}\right)\text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{1-\mathrm{i}\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}{\sqrt{2}}\right],\ 2\right]\Bigg)$$

$$\sqrt{\mathrm{i}\,\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}\ \sqrt{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+\mathrm{i}\,\text{Sin}[e+f\,x])}\ \left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left(-\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]\text{Sec}[e+f\,x]\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]+\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Sec}[e+f\,x]\,\text{Tan}[e+f\,x]\right)\Bigg)\Bigg)$$

- **Problem 612: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f\,x])^{3/2}}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 477 leaves, 17 steps):

$$\frac{a\,\text{ArcTan}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right](d\,\text{Sec}[e+f\,x])^{3/2}}{2\sqrt{b}\,(a^2+b^2)^{5/4}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}-\frac{a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right](d\,\text{Sec}[e+f\,x])^{3/2}}{2\sqrt{b}\,(a^2+b^2)^{5/4}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}-$$

$$\frac{\text{EllipticE}\left[\frac{1}{2}\text{ArcTan}[\text{Tan}[e+f\,x]],\ 2\right](d\,\text{Sec}[e+f\,x])^{3/2}}{(a^2+b^2)\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}}+\frac{\text{Cos}[e+f\,x]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]}{(a^2+b^2)\,f}-$$

$$\left(a^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\ \text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\ -1\right](d\,\text{Sec}[e+f\,x])^{3/2}\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,b\,(a^2+b^2)^{3/2}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}\right)+$$

$$\left(a^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\ \text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\ -1\right](d\,\text{Sec}[e+f\,x])^{3/2}\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,b\,(a^2+b^2)^{3/2}\,f\,(\text{Sec}[e+f\,x]^2)^{3/4}\right)-\frac{b\,(d\,\text{Sec}[e+f\,x])^{3/2}}{(a^2+b^2)\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 31 817 leaves): Display of huge result suppressed!

- **Problem 613: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{d\,\text{Sec}[e+f\,x]}}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 430 leaves, 17 steps) :

$$-\frac{3 a \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \sqrt{d \text{Sec}[e+f x]}}{2 \left(a^2+b^2\right)^{7/4} f \left(\text{Sec}[e+f x]^2\right)^{1/4}}-$$

$$\frac{3 a \sqrt{b} \text{ArcTanh}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \sqrt{d \text{Sec}[e+f x]}}{2 \left(a^2+b^2\right)^{7/4} f \left(\text{Sec}[e+f x]^2\right)^{1/4}}-\frac{\text{EllipticF}\left[\frac{1}{2} \text{ArcTan}[\text{Tan}[e+f x]], 2\right] \sqrt{d \text{Sec}[e+f x]}}{\left(a^2+b^2\right) f \left(\text{Sec}[e+f x]^2\right)^{1/4}}+$$

$$\left(3 a^2 \text{Cot}[e+f x] \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(2 \left(a^2+b^2\right)^2 f \left(\text{Sec}[e+f x]^2\right)^{1/4}\right)+$$

$$\left(3 a^2 \text{Cot}[e+f x] \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] \sqrt{d \text{Sec}[e+f x]} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(2 \left(a^2+b^2\right)^2 f \left(\text{Sec}[e+f x]^2\right)^{1/4}\right)-\frac{b \sqrt{d \text{Sec}[e+f x]}}{\left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])}$$

Result (type 4, 11 501 leaves) :

$$\frac{1}{f (a+b \text{Tan}[e+f x])^2}$$

$$\text{Sec}[e+f x]^2 \sqrt{d \text{Sec}[e+f x]} (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 \left(-\frac{b}{a (a-i b) (a+i b)}+\frac{b^2 \text{Sin}[e+f x]}{a (a-i b) (a+i b) (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])}\right)+$$

$$\left(\text{Sec}[e+f x]^{3/2} \sqrt{d \text{Sec}[e+f x]} (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2\right.$$

$$\left(\frac{a}{(a-i b) (a+i b) \sqrt{\text{Sec}[e+f x]} (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])}-\frac{b \sqrt{\text{Sec}[e+f x]} \text{Sin}[e+f x]}{2 (a-i b) (a+i b) (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])}\right)$$

$$\sqrt{\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\left(2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right],-1\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\right.$$

$$\left(3 b\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-\right.\right.$$

$$\left.(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2 i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3 b^2\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\Bigg]\Bigg) \sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Big/ \left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\Bigg(3\,b\,\Bigg(\left(a+b+\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right]\Bigg) \sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Big/ \left(\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\left(3\,b^2\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\Bigg)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)\Bigg)\Bigg)\Bigg/\Bigg((a-i\,b)\,(a+i\,b)\,f$$

$$\left(\frac{1}{2\,(a-i\,b)\,(a+i\,b)}\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{3/2}\left(2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]\right.\right.$$

$$\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}+\left(3\,b\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3\,b^2\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+\left(3\,b\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\right.\right.\right.\right.$$

$$\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\Big], 2\Big] - (1-i)\, a\, \text{EllipticPi}\Big[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\Big[\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\Big], 2\Big]\Bigg)$$

$$\left.\sqrt{-\frac{2+2 i \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(\left(i a+b+\sqrt{a^2+b^2}\right)\right.$$

$$\left.\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) + \Bigg(3 b^2 \Bigg(\left(a+b+\sqrt{a^2+b^2}\right) \text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\Big], 2\Big] - (1-i)$$

$$\left. a\, \text{EllipticPi}\Big[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\Big[\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\Big], 2\Big]\right) \sqrt{-\frac{2+2 i \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(\sqrt{a^2+b^2}\left(i a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\frac{1}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)}\sqrt{\frac{1}{1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}\left(-\frac{\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right],-1\right]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\sqrt{1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}-\right.$$

$$\left(3\,b\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\,\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\right)\Big/\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{3/2}\right)+$$

$$\left(3\,b^2\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\,\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}, 2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] \sqrt{-\frac{2+2\,\mathrm{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}} \left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right) -$$

$$\left(3\,b\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] - (1-\mathrm{i})\,a\,\text{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}, 2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] \sqrt{-\frac{2+2\,\mathrm{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(2\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right) -$$

$$\left(3\,b^2\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Big/\left(2\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{3/2}\right)+$$

$$\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}+\left(3\,b\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(3\,b^2\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\,\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,b\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\,\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\Big]\Bigg)\ \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\ \Bigg)\Bigg/\left(\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\Bigg(3\,b^2\Bigg(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\Big[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\Big]-(1-i)\,a\,\text{EllipticPi}\Big[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},$$

$$\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\Big]\Bigg)\ \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\ \left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\ \Bigg)\Bigg/\left(\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,b\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}\right)\right)\Bigg/$$

$$\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)-$$

$$\left(3\,b^2\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,b\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(2\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(3\,b^2\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{i\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}\right)\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(3\,b\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left(\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^{2}\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^{2}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{3}}\right)\right)\Big/$$

$$\left(2\left(-a-b+\sqrt{a^{2}+b^{2}}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^{2}+b^{2}}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}}\right)-$$

$$\left(3\,b^{2}\left(\left(a+b-\sqrt{a^{2}+b^{2}}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^{2}+b^{2}}\right)\right)}{a+b-\sqrt{a^{2}+b^{2}}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^{2}\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^{2}\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{3}}\right)\right)\Big/$$

$$\left(2\sqrt{a^{2}+b^{2}}\left(-a-b+\sqrt{a^{2}+b^{2}}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^{2}+b^{2}}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^{2}}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^{2}}\right)+$$

$$\left(3\,b\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^3}\right)\right)\Big/$$

$$\left(2\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(3\,b^2\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left(\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^3}\right)\right)\Big/$$

$$\left(2\,\sqrt{a^2+b^2}\,\left(\mathbb{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\,\sqrt{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)+$$

$$\left(3\,b\,\sqrt{-\frac{2+2\,\mathbb{i}\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\right.$$

$$\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)}{2\,\sqrt{2}\,\sqrt{\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathbb{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{(1+\mathbb{i})\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathbb{i}}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\left(1-\frac{\mathbb{i}\left(a+\mathbb{i}\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(\mathbb{i}+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\right)\right)\right)\Big/$$

$$\left(\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)-\left(3\,b^2\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right.$$

$$\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\right.$$

$$\left.\left.\left.\left(1-\frac{\mathrm{i}\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\right)\right)\right)\Bigg/\left(\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\right.$$

$$\left.\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(3\,b\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\right.$$

$$\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}}\left(\frac{\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right.$$

$$\left.\left.\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\left(1-\frac{\mathrm{i}\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)\right)\Big/$$

$$\left(\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)+\left(3b^2\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2\right.$$

$$\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}}\left(\frac{\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$

$$\left.\left.\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(1-\frac{i\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\Big/$$

$$\left(\left(\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)\right)(a+b\,\mathrm{Tan}[e+f x])^2\Bigg)$$

- **Problem 614: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{d\,\mathrm{Sec}[e+f x]}\,(a+b\,\mathrm{Tan}[e+f x])^2}\,dx$$

Optimal (type 4, 555 leaves, 18 steps) :

$$\frac{5\,a\,b^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{2\,(a^2+b^2)^{9/4}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{5\,a\,b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{2\,(a^2+b^2)^{9/4}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}+$$

$$\frac{(2\,a^2-3\,b^2)\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{(2\,a^2-3\,b^2)\,\text{Tan}[e+f\,x]}{(a^2+b^2)^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-$$

$$\left(5\,a^2\,b\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,(a^2+b^2)^{5/2}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+$$

$$\left(5\,a^2\,b\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,(a^2+b^2)^{5/2}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+\frac{b\,(2\,a^2-3\,b^2)\,\text{Sec}[e+f\,x]^2}{(a^2+b^2)^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,(a+b\,\text{Tan}[e+f\,x])}+\frac{2\,(b+a\,\text{Tan}[e+f\,x])}{(a^2+b^2)\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 33 334 leaves) : Display of huge result suppressed !

- **Problem 615: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(d\,\text{Sec}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 4, 520 leaves, 18 steps) :

$$-\frac{7\,a\,b^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}{2\,\left(a^2+b^2\right)^{11/4}\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}-$$

$$\frac{7\,a\,b^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}{2\,\left(a^2+b^2\right)^{11/4}\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}+\frac{\left(2\,a^2-5\,b^2\right)\,\text{EllipticF}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}{3\,\left(a^2+b^2\right)^2\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}}+$$

$$\left(7\,a^2\,b^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,\left(a^2+b^2\right)^3\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\right)+$$

$$\left(7\,a^2\,b^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,\left(a^2+b^2\right)^3\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\right)+\frac{b\,\left(2\,a^2-5\,b^2\right)\,\text{Sec}[e+f\,x]^2}{3\,\left(a^2+b^2\right)^2\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])}+\frac{2\,(b+a\,\text{Tan}[e+f\,x])}{3\,\left(a^2+b^2\right)\,f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 11 962 leaves) :

$$\left(\text{Sec}[e+f\,x]^4\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right.$$

$$\left.\left(\frac{b\,\left(2\,a^2-3\,b^2\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,a\,b\,\text{Cos}[2\,(e+f\,x)]}{3\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{b^4\,\text{Sin}[e+f\,x]}{a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}+\frac{\left(a^2-b^2\right)\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-i\,b)^2\,(a+i\,b)^2}\right)\right)\Big/$$

$$\left(f\,(d\,\text{Sec}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])^2\right)+\left(2\,\text{Sec}[e+f\,x]^{7/2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right.$$

$$\left(\frac{a^3}{3\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[e+f\,x]}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}+\frac{8\,a\,b^2}{3\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[e+f\,x]}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}+\right.$$

$$\left.\frac{a^2\,b\,\sqrt{\text{Sec}[e+f\,x]}\,\text{Sin}[e+f\,x]}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}-\frac{5\,b^3\,\sqrt{\text{Sec}[e+f\,x]}\,\text{Sin}[e+f\,x]}{6\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}\right)\sqrt{\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}}$$

$$\Big(a^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big],-1\Big]\,\sqrt{1-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2}+8\,b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big],-1\Big]$$

$$\sqrt{1-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2}+\Bigg(21\,b^4\,\Bigg(\Big(a+b+\sqrt{a^2+b^2}\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\frac{\sqrt{\frac{(1+i)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\Bigg],2\Bigg]-$$

$$(1-i)\,a\,\text{EllipticPi}\Bigg[\frac{(1+i)\,\left(a-i\,\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Bigg[\frac{\sqrt{\frac{(1+i)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\Bigg],2\Bigg]\Bigg)\sqrt{-\frac{1+i\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}$$

$$\Big(i+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)^2\,\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\Bigg)\Big/\Bigg(\sqrt{2}\,\sqrt{a^2+b^2}\,\Big(i\,a+b+\sqrt{a^2+b^2}\Big)\,\Big(a+b+\sqrt{a^2+b^2}\Big)\,\sqrt{1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2}\Bigg)+$$

$$\Bigg(21\,b^3\,\Bigg(\Big(a+b-\sqrt{a^2+b^2}\Big)\,\text{EllipticF}\Bigg[\text{ArcSin}\Bigg[\frac{\sqrt{\frac{(1+i)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2}}\Bigg],2\Bigg]-$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] \sqrt{-\frac{2+2\, i\, \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Bigg/ \left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\, a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) -$$

$$\Bigg(21\, b^4 \Bigg(\left(a+b-\sqrt{a^2+b^2}\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] -$$

$$(1-i)\, a\, \text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right], 2\right] \sqrt{-\frac{2+2\, i\, \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2 \sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\Bigg) \Bigg/ \left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\, a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right) +$$

$$\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-\right.\right.$$

$$\left.(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left.\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Big/\left(2\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)\right)\Big/$$

$$\left(3\left(a^2+b^2\right)^2 f\,(d\,\text{Sec}[e+f\,x])^{3/2}\left(\frac{1}{3\left(a^2+b^2\right)^2}\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{3/2}\right.\right.$$

$$\left(a^2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}+8\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right],-1\right]\right.$$

$$\sqrt{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\left(21 b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{1+i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(\sqrt{2}\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(21 b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/$$

$$\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)-\left(21\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\right.\right.\right.\right.$$

$$\left.\left.\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\mathrm{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)$$

$$\left.\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\right)\Big/\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\right.$$

$$\left.\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\right.\right.$$

$$\left.a\,\mathrm{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2\sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}}\right)\Bigg/\left(2\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)\Bigg)+$$

$$\frac{1}{3\left(a^2+b^2\right)^2}2\sqrt{\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\left(-\frac{a^2\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right],-1\right]\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}{2\sqrt{1-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}-\right.$$

$$\frac{4\,b^2\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right],-1\right]\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}{\sqrt{1-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}-$$

$$\left(21\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\operatorname{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\operatorname{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}}}{\sqrt{2}}\right],2\right]\right)\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\sqrt{-\frac{1+i\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}{i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]}}\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}}\right)\Bigg/\left(2\sqrt{2}\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^{3/2}\right)-$$

$$\left(21\,b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Big/\left(4\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)+$$

$$\left(21\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/ \left(4\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\text{i}\,a-b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)-$$

$$\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\text{i})\,a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+\text{i})\left(a-\text{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]\sqrt{-\frac{2+2\,\text{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right) \Big/$$

$$\left(4\left(\text{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{3/2}\right)+\frac{a^2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}+\frac{4\,b^2\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}+$$

$$\left(21\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\text{i})\,a\,\text{EllipticPi}\left[\frac{(1+\text{i})\left(a-\text{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}},2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{1+i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Big/\left(\sqrt{2}\sqrt{a^2+b^2}\left(i a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(21 b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}},2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Big/\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(21\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\,\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\right.\right.\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\right)\Bigg/\left(2\left(\text{i}\, a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(21\, b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\text{i})\, a\,\text{EllipticPi}\left[\right.\right.\right.$$

$$\left.\left.\frac{(1+\text{i})\left(a-\text{i}\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{i}\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\Bigg/$$

$$\left(2\sqrt{2}\sqrt{a^2+b^2}\left(\text{i}\, a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{1+\text{i}\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\left(21\, b^3\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+\text{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\text{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\text{i})\, a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2 i \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(4\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2 i \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-$$

$$\left(21 b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\, a\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(2+2 i \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{i \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right)\Big/$$

$$\left(4\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i\,a-b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2$$

$$\left.\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{i\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}\right)\right)\Big/$$

$$\left(4\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{-\frac{2+2\,i\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(21\,b^4\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-i)\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{1+i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\Bigg)\Big/$$

$$\left(2\sqrt{2}\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)+$$

$$\Bigg(21\,b^3\Bigg(\left(a+b-\sqrt{a^2+b^2}\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]-(1-i)\,a$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^3}\right)\Bigg)\Big/$$

$$\left(4\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)-$$

$$\left(21\,b^4\left(\left(a+b-\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{(1+\mathrm{i})\left(a+\mathrm{i}\left(-b+\sqrt{a^2+b^2}\right)\right)}{a+b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]\right)\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left.\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^3}\right)\right)\Big/$$

$$\left(4\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\left(-\mathrm{i}\,a-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\left(21\,b^3\left(\left(a+b+\sqrt{a^2+b^2}\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],2\right]-(1-\mathrm{i})\,a\right.\right.$$

$$\text{EllipticPi}\left[\frac{(1+i)\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2}}\right],\ 2\right]\right)\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}$$

$$\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^3}\right)\Bigg)\Bigg/$$

$$\left(4\left(i\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)+$$

$$\Bigg(21\,b^3\sqrt{-\frac{2+2\,i\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}}$$

$$\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{i+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\right.$$

$$\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(1-\frac{i\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)\Bigg)\Bigg/$$

$$\left(2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-i a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)-\Bigg(21 b^4\sqrt{-\frac{2+2 i \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2$$

$$\sqrt{\frac{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\left(a+b-\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{i}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(\sqrt{2}\sqrt{\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+i)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{i}{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}$$

$$\left(1-\frac{i\left(a+i\left(-b+\sqrt{a^2+b^2}\right)\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b-\sqrt{a^2+b^2}\right)\left(i+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)\Bigg/\left(2\sqrt{a^2+b^2}\left(-a-b+\sqrt{a^2+b^2}\right)\right)$$

$$\left(-\mathrm{i}\, a-b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\Bigg)+\Bigg(21\,b^4\sqrt{-\frac{1+\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2$$

$$\sqrt{\frac{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}}\left(\frac{\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right.$$

$$\left.\left.\left.\left(1-\frac{\mathrm{i}\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\right)\right)\right)\Big/\left(\sqrt{2}\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\right.$$

$$\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\Bigg)+\Bigg(21\,b^3\sqrt{-\frac{2+2\,\mathrm{i}\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\left(\mathrm{i}+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2$$

$$\sqrt{\frac{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}\left(\frac{\left(a+b+\sqrt{a^2+b^2}\right)\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)}{2\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}-\right.$$

$$\left(\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)a\left(\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\sqrt{\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{(1+\mathrm{i})\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$
$$\left.\left.\left.\sqrt{1-\frac{\left(\frac{1}{2}+\frac{\mathrm{i}}{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(1-\frac{\mathrm{i}\left(a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(\mathrm{i}+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right)\Big/$$

$$\left.\left(2\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)\right)\right)(a+b\,\text{Tan}[e+f x])^2\Bigg)$$

- **Problem 616: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(d\,\text{Sec}[e+f x])^{5/2}(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 4, 700 leaves, 19 steps):

$$\frac{9\,a\,b^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{2\,\left(a^2+b^2\right)^{13/4}\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{9\,a\,b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{2\,\left(a^2+b^2\right)^{13/4}\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}+$$

$$\frac{3\,\left(2\,a^4+10\,a^2\,b^2-7\,b^4\right)\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{5\,\left(a^2+b^2\right)^3\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{3\,\left(2\,a^4+10\,a^2\,b^2-7\,b^4\right)\,\text{Tan}[e+f\,x]}{5\,\left(a^2+b^2\right)^3\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-$$

$$\left(9\,a^2\,b^3\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,\left(a^2+b^2\right)^{7/2}\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+$$

$$\left(9\,a^2\,b^3\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(2\,\left(a^2+b^2\right)^{7/2}\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+\frac{3\,b\,\left(2\,a^4+10\,a^2\,b^2-7\,b^4\right)\,\text{Sec}[e+f\,x]^2}{5\,\left(a^2+b^2\right)^3\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\left(a+b\,\text{Tan}[e+f\,x]\right)}+$$

$$\frac{2\,\text{Cos}[e+f\,x]^2\,\left(b+a\,\text{Tan}[e+f\,x]\right)}{5\,\left(a^2+b^2\right)\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\left(a+b\,\text{Tan}[e+f\,x]\right)}-\frac{2\,\left(b\,\left(2\,a^2-7\,b^2\right)-3\,a\,\left(a^2+4\,b^2\right)\,\text{Tan}[e+f\,x]\right)}{5\,\left(a^2+b^2\right)^2\,d^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\left(a+b\,\text{Tan}[e+f\,x]\right)}$$

Result (type 4, 34 805 leaves) : Display of huge result suppressed !

- **Problem 617: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\left(d\,\text{Sec}[e+f\,x]\right)^{7/2}}{\left(a+b\,\text{Tan}[e+f\,x]\right)^3}\,dx$$

Optimal (type 4, 583 leaves, 18 steps) :

$$\frac{3\left(a^2+2b^2\right)d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{8\,b^{5/2}\left(a^2+b^2\right)^{5/4}f\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}-\frac{3\left(a^2+2b^2\right)d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{8\,b^{5/2}\left(a^2+b^2\right)^{5/4}f\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}+$$

$$\frac{3\,a\,d^2\,\text{EllipticE}\left[\frac{1}{2}\text{ArcTan}[\text{Tan}[e+f\,x]],2\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}}{4\,b^2\left(a^2+b^2\right)f\left(\text{Sec}[e+f\,x]^2\right)^{3/4}}-\frac{3\,a\,d^2\,\text{Cos}[e+f\,x]\,(d\,\text{Sec}[e+f\,x])^{3/2}\,\text{Sin}[e+f\,x]}{4\,b^2\left(a^2+b^2\right)f}-$$

$$\left(3\,a\left(a^2+2b^2\right)d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,b^3\left(a^2+b^2\right)^{3/2}f\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)+$$

$$\left(3\,a\left(a^2+2b^2\right)d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],-1\right]\,(d\,\text{Sec}[e+f\,x])^{3/2}\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,b^3\left(a^2+b^2\right)^{3/2}f\left(\text{Sec}[e+f\,x]^2\right)^{3/4}\right)-\frac{d^2\,(d\,\text{Sec}[e+f\,x])^{3/2}}{2\,b\,f\,(a+b\,\text{Tan}[e+f\,x])^2}+\frac{3\,a\,d^2\,(d\,\text{Sec}[e+f\,x])^{3/2}}{4\,b\left(a^2+b^2\right)f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 31 478 leaves) : Display of huge result suppressed !

- **Problem 618: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f\,x])^{5/2}}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 4, 532 leaves, 18 steps) :

$$\frac{\left(a^2-2\,b^2\right)\,d^2\,\text{ArcTan}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{8\,b^{3/2}\,\left(a^2+b^2\right)^{7/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}+$$

$$\frac{\left(a^2-2\,b^2\right)\,d^2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{8\,b^{3/2}\,\left(a^2+b^2\right)^{7/4}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}+\frac{a\,d^2\,\text{EllipticF}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}}{4\,b^2\,\left(a^2+b^2\right)\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}}-$$

$$\left(a\,\left(a^2-2\,b^2\right)\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,b^2\,\left(a^2+b^2\right)^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right)-$$

$$\left(a\,\left(a^2-2\,b^2\right)\,d^2\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right],\,-1\right]\,\sqrt{d\,\text{Sec}[e+f\,x]}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,b^2\,\left(a^2+b^2\right)^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/4}\right)-\frac{d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}}{2\,b\,f\,(a+b\,\text{Tan}[e+f\,x])^2}+\frac{a\,d^2\,\sqrt{d\,\text{Sec}[e+f\,x]}}{4\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 21 475 leaves) : Display of huge result suppressed!

- **Problem 619: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Sec}[e+f\,x])^{3/2}}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 4, 566 leaves, 18 steps) :

$$\frac{\left(3 a^2-2 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b}\ \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] (d \text{Sec}[e+f x])^{3/2}}{8 \sqrt{b}\ \left(a^2+b^2\right)^{9/4} f \left(\text{Sec}[e+f x]^2\right)^{3/4}}-\frac{\left(3 a^2-2 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{b}\ \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] (d \text{Sec}[e+f x])^{3/2}}{8 \sqrt{b}\ \left(a^2+b^2\right)^{9/4} f \left(\text{Sec}[e+f x]^2\right)^{3/4}}-$$

$$\frac{5 a \text{EllipticE}\left[\frac{1}{2} \text{ArcTan}[\text{Tan}[e+f x]], 2\right] (d \text{Sec}[e+f x])^{3/2}}{4 \left(a^2+b^2\right)^2 f \left(\text{Sec}[e+f x]^2\right)^{3/4}}+\frac{5 a \text{Cos}[e+f x] (d \text{Sec}[e+f x])^{3/2} \text{Sin}[e+f x]}{4 \left(a^2+b^2\right)^2 f}-$$

$$\left(a \left(3 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] (d \text{Sec}[e+f x])^{3/2} \sqrt{-\text{Tan}[e+f x]^2}\right) \Big/$$

$$\left(8 b \left(a^2+b^2\right)^{5/2} f \left(\text{Sec}[e+f x]^2\right)^{3/4}\right)+$$

$$\left(a \left(3 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}}, \text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right], -1\right] (d \text{Sec}[e+f x])^{3/2} \sqrt{-\text{Tan}[e+f x]^2}\right) \Big/$$

$$\left(8 b \left(a^2+b^2\right)^{5/2} f \left(\text{Sec}[e+f x]^2\right)^{3/4}\right)-\frac{b (d \text{Sec}[e+f x])^{3/2}}{2 \left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^2}-\frac{5 a b (d \text{Sec}[e+f x])^{3/2}}{4 \left(a^2+b^2\right)^2 f (a+b \text{Tan}[e+f x])}$$

Result (type 4, 31 542 leaves) : Display of huge result suppressed!

- **Problem 620: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{d \text{Sec}[e+f x]}}{(a+b \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 4, 515 leaves, 18 steps) :

$$-\frac{3\sqrt{b}\,(5a^2-2b^2)\,\text{ArcTan}\left[\frac{\sqrt{b}\,(\text{Sec}[e+fx]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\sqrt{d\,\text{Sec}[e+fx]}}{8\,(a^2+b^2)^{11/4}\,f\,(\text{Sec}[e+fx]^2)^{1/4}}-$$

$$\frac{3\sqrt{b}\,(5a^2-2b^2)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,(\text{Sec}[e+fx]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\sqrt{d\,\text{Sec}[e+fx]}}{8\,(a^2+b^2)^{11/4}\,f\,(\text{Sec}[e+fx]^2)^{1/4}}-\frac{7\,a\,\text{EllipticF}\left[\frac{1}{2}\text{ArcTan}[\text{Tan}[e+fx]],\,2\right]\sqrt{d\,\text{Sec}[e+fx]}}{4\,(a^2+b^2)^2\,f\,(\text{Sec}[e+fx]^2)^{1/4}}+$$

$$\left(3\,a\,(5a^2-2b^2)\,\text{Cot}[e+fx]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+fx]^2)^{1/4}\right],\,-1\right]\sqrt{d\,\text{Sec}[e+fx]}\,\sqrt{-\text{Tan}[e+fx]^2}\right)\Big/$$

$$\left(8\,(a^2+b^2)^3\,f\,(\text{Sec}[e+fx]^2)^{1/4}\right)+$$

$$\left(3\,a\,(5a^2-2b^2)\,\text{Cot}[e+fx]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+fx]^2)^{1/4}\right],\,-1\right]\sqrt{d\,\text{Sec}[e+fx]}\,\sqrt{-\text{Tan}[e+fx]^2}\right)\Big/$$

$$\left(8\,(a^2+b^2)^3\,f\,(\text{Sec}[e+fx]^2)^{1/4}\right)-\frac{b\sqrt{d\,\text{Sec}[e+fx]}}{2\,(a^2+b^2)\,f\,(a+b\,\text{Tan}[e+fx])^2}-\frac{7\,a\,b\sqrt{d\,\text{Sec}[e+fx]}}{4\,(a^2+b^2)^2\,f\,(a+b\,\text{Tan}[e+fx])}$$

Result (type 4, 41 235 leaves) : Display of huge result suppressed !

- **Problem 621: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{d\,\text{Sec}[e+fx]}\,(a+b\,\text{Tan}[e+fx])^3}\,dx$$

Optimal (type 4, 664 leaves, 19 steps) :

$$\frac{5\,b^{3/2}\,(7\,a^2-2\,b^2)\,\text{ArcTan}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{8\,(a^2+b^2)^{13/4}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{5\,b^{3/2}\,(7\,a^2-2\,b^2)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,(\text{Sec}[e+f\,x]^2)^{1/4}}{(a^2+b^2)^{1/4}}\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{8\,(a^2+b^2)^{13/4}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}+$$

$$\frac{a\,(8\,a^2-37\,b^2)\,\text{EllipticE}\left[\frac{1}{2}\,\text{ArcTan}[\text{Tan}[e+f\,x]],\,2\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}}{4\,(a^2+b^2)^3\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-\frac{a\,(8\,a^2-37\,b^2)\,\text{Tan}[e+f\,x]}{4\,(a^2+b^2)^3\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}}-$$

$$\left(5\,a\,b\,(7\,a^2-2\,b^2)\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,(a^2+b^2)^{7/2}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+$$

$$\left(5\,a\,b\,(7\,a^2-2\,b^2)\,\text{Cot}[e+f\,x]\,\text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\,\text{ArcSin}\left[(\text{Sec}[e+f\,x]^2)^{1/4}\right],\,-1\right]\,(\text{Sec}[e+f\,x]^2)^{1/4}\,\sqrt{-\text{Tan}[e+f\,x]^2}\right)\Big/$$

$$\left(8\,(a^2+b^2)^{7/2}\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\right)+\frac{b\,(4\,a^2-5\,b^2)\,\text{Sec}[e+f\,x]^2}{2\,(a^2+b^2)^2\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,(a+b\,\text{Tan}[e+f\,x])^2}+$$

$$\frac{2\,(b+a\,\text{Tan}[e+f\,x])}{(a^2+b^2)\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,(a+b\,\text{Tan}[e+f\,x])^2}+\frac{a\,b\,(8\,a^2-37\,b^2)\,\text{Sec}[e+f\,x]^2}{4\,(a^2+b^2)^3\,f\,\sqrt{d\,\text{Sec}[e+f\,x]}\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 4, 32 867 leaves) : Display of huge result suppressed !

- **Problem 622: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(d\,\text{Sec}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 4, 620 leaves, 19 steps) :

$$-\frac{7 b^{5/2} \left(9 a^2-2 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{3/4}}{8 \left(a^2+b^2\right)^{15/4} f (d \text{Sec}[e+f x])^{3/2}}-$$

$$\frac{7 b^{5/2} \left(9 a^2-2 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{3/4}}{8 \left(a^2+b^2\right)^{15/4} f (d \text{Sec}[e+f x])^{3/2}}+\frac{a \left(8 a^2-69 b^2\right) \text{EllipticF}\left[\frac{1}{2} \text{ArcTan}[\text{Tan}[e+f x]],2\right] \left(\text{Sec}[e+f x]^2\right)^{3/4}}{12 \left(a^2+b^2\right)^3 f (d \text{Sec}[e+f x])^{3/2}}+$$

$$\left(7 a b^2 \left(9 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right] \left(\text{Sec}[e+f x]^2\right)^{3/4} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(8 \left(a^2+b^2\right)^4 f (d \text{Sec}[e+f x])^{3/2}\right)+$$

$$\left(7 a b^2 \left(9 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right] \left(\text{Sec}[e+f x]^2\right)^{3/4} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(8 \left(a^2+b^2\right)^4 f (d \text{Sec}[e+f x])^{3/2}\right)+\frac{b \left(4 a^2-7 b^2\right) \text{Sec}[e+f x]^2}{6 \left(a^2+b^2\right)^2 f (d \text{Sec}[e+f x])^{3/2} (a+b \text{Tan}[e+f x])^2}+$$

$$\frac{2 (b+a \text{Tan}[e+f x])}{3 \left(a^2+b^2\right) f (d \text{Sec}[e+f x])^{3/2} (a+b \text{Tan}[e+f x])^2}+\frac{a b \left(8 a^2-69 b^2\right) \text{Sec}[e+f x]^2}{12 \left(a^2+b^2\right)^3 f (d \text{Sec}[e+f x])^{3/2} (a+b \text{Tan}[e+f x])}$$

Result (type 4, 42 324 leaves) : Display of huge result suppressed!

- **Problem 623: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(d \text{Sec}[e+f x])^{5/2} (a+b \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 4, 814 leaves, 20 steps) :

$$\frac{9 b^{7/2} \left(11 a^2-2 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{8 \left(a^2+b^2\right)^{17/4} d^2 f \sqrt{d \text{Sec}[e+f x]}}-\frac{9 b^{7/2} \left(11 a^2-2 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{b} \left(\text{Sec}[e+f x]^2\right)^{1/4}}{\left(a^2+b^2\right)^{1/4}}\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{8 \left(a^2+b^2\right)^{17/4} d^2 f \sqrt{d \text{Sec}[e+f x]}}+$$

$$\frac{3 a \left(8 a^4+64 a^2 b^2-139 b^4\right) \text{EllipticE}\left[\frac{1}{2} \text{ArcTan}[\text{Tan}[e+f x]],2\right] \left(\text{Sec}[e+f x]^2\right)^{1/4}}{20 \left(a^2+b^2\right)^4 d^2 f \sqrt{d \text{Sec}[e+f x]}}-\frac{3 a \left(8 a^4+64 a^2 b^2-139 b^4\right) \text{Tan}[e+f x]}{20 \left(a^2+b^2\right)^4 d^2 f \sqrt{d \text{Sec}[e+f x]}}-$$

$$\left(9 a b^3 \left(11 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[-\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right] \left(\text{Sec}[e+f x]^2\right)^{1/4} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(8 \left(a^2+b^2\right)^{9/2} d^2 f \sqrt{d \text{Sec}[e+f x]}\right)+$$

$$\left(9 a b^3 \left(11 a^2-2 b^2\right) \text{Cot}[e+f x] \text{EllipticPi}\left[\frac{b}{\sqrt{a^2+b^2}},\text{ArcSin}\left[\left(\text{Sec}[e+f x]^2\right)^{1/4}\right],-1\right] \left(\text{Sec}[e+f x]^2\right)^{1/4} \sqrt{-\text{Tan}[e+f x]^2}\right)\Big/$$

$$\left(8 \left(a^2+b^2\right)^{9/2} d^2 f \sqrt{d \text{Sec}[e+f x]}\right)+\frac{3 b \left(4 a^4+28 a^2 b^2-15 b^4\right) \text{Sec}[e+f x]^2}{10 \left(a^2+b^2\right)^3 d^2 f \sqrt{d \text{Sec}[e+f x]} (a+b \text{Tan}[e+f x])^2}+$$

$$\frac{2 \text{Cos}[e+f x]^2 (b+a \text{Tan}[e+f x])}{5 \left(a^2+b^2\right) d^2 f \sqrt{d \text{Sec}[e+f x]} (a+b \text{Tan}[e+f x])^2}+\frac{3 a b \left(8 a^4+64 a^2 b^2-139 b^4\right) \text{Sec}[e+f x]^2}{20 \left(a^2+b^2\right)^4 d^2 f \sqrt{d \text{Sec}[e+f x]} (a+b \text{Tan}[e+f x])}-$$

$$\frac{2 \left(b \left(4 a^2-9 b^2\right)-a \left(3 a^2+16 b^2\right) \text{Tan}[e+f x]\right)}{5 \left(a^2+b^2\right)^2 d^2 f \sqrt{d \text{Sec}[e+f x]} (a+b \text{Tan}[e+f x])^2}$$

Result (type 4, 34 358 leaves) : Display of huge result suppressed !

- **Problem 626: Mathematica result simpler than optimal antiderivative, IF it can be verified!**

$$\int \frac{a+b \text{Tan}[e+f x]}{(d \text{Sec}[e+f x])^{1/3}} \, dx$$

Optimal (type 5, 76 leaves, 3 steps) :

$$-\frac{3 b}{f (d \text{Sec}[e+f x])^{1/3}}-\frac{3 a d \text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\text{Cos}[e+f x]^2\right] \text{Sin}[e+f x]}{4 f (d \text{Sec}[e+f x])^{4/3} \sqrt{\text{Sin}[e+f x]^2}}$$

Result (type 4, 2147 leaves) :

$$\left(\sqrt{1-\text{Cos}[e+f x]^2} \left((-1)^{1/3}+\text{Sec}[e+f x]^{2/3}+\sqrt{3} \text{Sec}[e+f x]^{2/3}\right)^6 \text{Sec}[e+f x]^{1/3}\right.$$

$$\left(-1+\mathrm{Sec}[e+f x]^2\right)^2 \left(-\frac{3 b}{\mathrm{Sec}[e+f x]^{1/3}}+3 a \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{2/3}-\frac{1}{\sqrt{-1+\mathrm{Sec}[e+f x]^2}}\right.$$

$$6 a \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x] \left(\left((-1)^{1/3} \left(-6\,\mathrm{EllipticE}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}+\left(1-\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4}\left(2+\sqrt{3}\right)\right]+\right.\right.\right.$$

$$\left.\left(3-\sqrt{3}\right) \mathrm{EllipticF}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}+\left(1-\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4}\left(2+\sqrt{3}\right)\right]\right) \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2$$

$$\left.\sqrt{\frac{\left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} \sqrt{\frac{(-1)^{2/3}-(-1)^{1/3} \mathrm{Sec}[e+f x]^{2/3}+\mathrm{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}}\right) \Bigg/$$

$$\left.\left.\left.\left(4\times 3^{3/4}\, \mathrm{Sec}[e+f x]^{1/3} \sqrt{-1+\mathrm{Sec}[e+f x]^2}\right)+\frac{\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{1/3} \sqrt{-1+\mathrm{Sec}[e+f x]^2}}{2\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)}\right)\right) (a+b\,\mathrm{Tan}[e+f x])\right) \Bigg/$$

$$\Big(f\,(d\,\mathrm{Sec}[e+f x])^{1/3} \Big(a\,\mathrm{Sin}[e+f x]-6 (-1)^{2/3} a\,\mathrm{Sec}[e+f x]^{2/3} \mathrm{Sin}[e+f x]-6 (-1)^{2/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{2/3} \mathrm{Sin}[e+f x]-$$

$$60 (-1)^{1/3} a\,\mathrm{Sec}[e+f x]^{4/3} \mathrm{Sin}[e+f x]-30 (-1)^{1/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{4/3} \mathrm{Sin}[e+f x]-$$

$$6 (-1)^{2/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{5/3} \mathrm{Sin}[e+f x]-6 (-1)^{2/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{5/3} \mathrm{Sin}[e+f x]-$$

$$60 (-1)^{1/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{7/3} \mathrm{Sin}[e+f x]-30 (-1)^{1/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{7/3} \mathrm{Sin}[e+f x]+$$

$$432 (-1)^{2/3} a\,\mathrm{Sec}[e+f x]^{8/3} \mathrm{Sin}[e+f x]+252 (-1)^{2/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{8/3} \mathrm{Sin}[e+f x]+576 (-1)^{1/3} a\,\mathrm{Sec}[e+f x]^{10/3} \mathrm{Sin}[e+f x]+$$

$$324 (-1)^{1/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{10/3} \mathrm{Sin}[e+f x]+432 (-1)^{2/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{11/3} \mathrm{Sin}[e+f x]+$$

$$252 (-1)^{2/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{11/3} \mathrm{Sin}[e+f x]+576 (-1)^{1/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{13/3} \mathrm{Sin}[e+f x]+$$

$$324 (-1)^{1/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{13/3} \mathrm{Sin}[e+f x]-846 (-1)^{2/3} a\,\mathrm{Sec}[e+f x]^{14/3} \mathrm{Sin}[e+f x]-$$

$$486 (-1)^{2/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{14/3} \mathrm{Sin}[e+f x]-972 (-1)^{1/3} a\,\mathrm{Sec}[e+f x]^{16/3} \mathrm{Sin}[e+f x]-$$

$$558 (-1)^{1/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{16/3} \mathrm{Sin}[e+f x]-846 (-1)^{2/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{17/3} \mathrm{Sin}[e+f x]-$$

$$486 (-1)^{2/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{17/3} \mathrm{Sin}[e+f x]-972 (-1)^{1/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{19/3} \mathrm{Sin}[e+f x]-$$

$$558 (-1)^{1/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{19/3} \mathrm{Sin}[e+f x]+420 (-1)^{2/3} a\,\mathrm{Sec}[e+f x]^{20/3} \mathrm{Sin}[e+f x]+$$

$$240 (-1)^{2/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{20/3} \mathrm{Sin}[e+f x]+456 (-1)^{1/3} a\,\mathrm{Sec}[e+f x]^{22/3} \mathrm{Sin}[e+f x]+$$

$$264 (-1)^{1/3} \sqrt{3}\, a\,\mathrm{Sec}[e+f x]^{22/3} \mathrm{Sin}[e+f x]+420 (-1)^{2/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{23/3} \mathrm{Sin}[e+f x]+$$

$$240 (-1)^{2/3} \sqrt{3}\, b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{23/3} \mathrm{Sin}[e+f x]+456 (-1)^{1/3} b \sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^{25/3} \mathrm{Sin}[e+f x]+$$

$$264\,(-1)^{1/3}\sqrt{3}\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{25/3}\,\text{Sin}[e+f x]+b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Tan}[e+f x]-$$
$$202\,a\,\text{Sec}[e+f x]\,\text{Tan}[e+f x]-120\sqrt{3}\,a\,\text{Sec}[e+f x]\,\text{Tan}[e+f x]-202\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$
$$120\sqrt{3}\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+609\,a\,\text{Sec}[e+f x]^3\,\text{Tan}[e+f x]+360\sqrt{3}\,a\,\text{Sec}[e+f x]^3\,\text{Tan}[e+f x]+$$
$$609\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^4\,\text{Tan}[e+f x]+360\sqrt{3}\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^4\,\text{Tan}[e+f x]-$$
$$616\,a\,\text{Sec}[e+f x]^5\,\text{Tan}[e+f x]-360\sqrt{3}\,a\,\text{Sec}[e+f x]^5\,\text{Tan}[e+f x]-616\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^6\,\text{Tan}[e+f x]-$$
$$360\sqrt{3}\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^6\,\text{Tan}[e+f x]+208\,a\,\text{Sec}[e+f x]^7\,\text{Tan}[e+f x]+120\sqrt{3}\,a\,\text{Sec}[e+f x]^7\,\text{Tan}[e+f x]+$$
$$208\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^8\,\text{Tan}[e+f x]+120\sqrt{3}\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^8\,\text{Tan}[e+f x]\Big)\Big)$$

- **Problem 630: Mathematica result simpler than optimal antiderivative, IF it can be verified!**

$$\int \frac{(a+b\,\text{Tan}[e+f x])^2}{(d\,\text{Sec}[e+f x])^{1/3}}\,dx$$

Optimal (type 5, 119 leaves, 4 steps):

$$-\frac{15\,a\,b}{2\,f\,(d\,\text{Sec}[e+f x])^{1/3}}-\frac{3\,(2\,a^2-3\,b^2)\,d\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{2}{3},\frac{5}{3},\text{Cos}[e+f x]^2\right]\text{Sin}[e+f x]}{8\,f\,(d\,\text{Sec}[e+f x])^{4/3}\sqrt{\text{Sin}[e+f x]^2}}+\frac{3\,b\,(a+b\,\text{Tan}[e+f x])}{2\,f\,(d\,\text{Sec}[e+f x])^{1/3}}$$

Result (type 4, 4052 leaves):

$$\frac{3\,b^2\,\text{Cos}[e+f x]\,\text{Sin}[e+f x]\,(a+b\,\text{Tan}[e+f x])^2}{2\,f\,(d\,\text{Sec}[e+f x])^{1/3}\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2}+$$
$$\Bigg(3\Bigg(-4\,a\,b\,\text{Sec}[e+f x]+\left(2\,a^2-3\,b^2\right)\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^2-\frac{1}{6\sqrt{1-\text{Cos}[e+f x]^2}\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)}$$
$$\left(2\,a^2-3\,b^2\right)\Bigg((-1)^{1/3}\,3^{1/4}\Bigg(-6\,\text{EllipticE}\Big[\text{ArcCos}\Big[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\Big],\frac{1}{4}\left(2+\sqrt{3}\right)\Big]-$$
$$\left(-3+\sqrt{3}\right)\text{EllipticF}\Big[\text{ArcCos}\Big[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\Big],\frac{1}{4}\left(2+\sqrt{3}\right)\Big]\Bigg)$$
$$\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^3\sqrt{\frac{\left((-1)^{1/3}+\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}$$

$$\sqrt{\frac{(-1)^{2/3}-(-1)^{1/3}\,\text{Sec}[e+f x]^{2/3}+\text{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}+6\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\Bigg)\Bigg)$$

$$\left(2\,a^2\,\text{Cos}[e+f x]-3\,b^2\,\text{Cos}[e+f x]+4\,a\,b\,\text{Sin}[e+f x]\right)\,(a+b\,\text{Tan}[e+f x])^2\Bigg)\Bigg/\Bigg(2\,f\,\text{Sec}[e+f x]^{7/3}$$

$$(d\,\text{Sec}[e+f x])^{1/3}$$
$$(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\Bigg)$$

$$\Bigg(-\frac{1}{\text{Sec}[e+f x]^{1/3}}$$

$$4\Bigg(-4\,a\,b\,\text{Sec}[e+f x]+\left(2\,a^2-3\,b^2\right)\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^2-\frac{1}{6\sqrt{1-\text{Cos}[e+f x]^2}\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)}$$

$$\left(2\,a^2-3\,b^2\right)\Bigg((-1)^{1/3}\,3^{1/4}\Bigg(-6\,\text{EllipticE}\Big[\text{ArcCos}\Big[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\Big],\ \frac{1}{4}\left(2+\sqrt{3}\right)\Big]-$$

$$\left(-3+\sqrt{3}\right)\text{EllipticF}\Big[\text{ArcCos}\Big[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\Big],\ \frac{1}{4}\left(2+\sqrt{3}\right)\Big]\Bigg)$$

$$\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^3\sqrt{\frac{\left((-1)^{1/3}+\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}$$

$$\sqrt{\frac{(-1)^{2/3}-(-1)^{1/3}\,\text{Sec}[e+f x]^{2/3}+\text{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}+6\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\Bigg)\Bigg)\,\text{Sin}[e+f x]+$$

$$\frac{1}{\mathrm{Sec}[e+f x]^{4/3}} 3 \left(\frac{1}{6 \left(1-\mathrm{Cos}[e+f x]^2\right)^{3/2} \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)} \left(2 a^2-3 b^2\right) \mathrm{Cos}[e+f x] \right.$$

$$\left((-1)^{1/3} 3^{1/4} \left(-6\, \mathrm{EllipticE}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right] - \right.\right.$$

$$\left.\left(-3+\sqrt{3}\right) \mathrm{EllipticF}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^3$$

$$\sqrt{\frac{\left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} \sqrt{\frac{(-1)^{2/3}-(-1)^{1/3} \mathrm{Sec}[e+f x]^{2/3}+\mathrm{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} +$$

$$\left. 6 \left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3} \left(-1+\mathrm{Sec}[e+f x]^2\right) \right) \mathrm{Sin}[e+f x] + \frac{1}{9 \sqrt{1-\mathrm{Cos}[e+f x]^2} \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}$$

$$\left(1+\sqrt{3}\right) \left(2 a^2-3 b^2\right) \mathrm{Sec}[e+f x]^{5/3} \left((-1)^{1/3} 3^{1/4} \left(-6\, \mathrm{EllipticE}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right] - \right.\right.$$

$$\left.\left(-3+\sqrt{3}\right) \mathrm{EllipticF}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^3$$

$$\sqrt{\frac{\left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} \sqrt{\frac{(-1)^{2/3}-(-1)^{1/3} \mathrm{Sec}[e+f x]^{2/3}+\mathrm{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} +$$

$$\left. 6 \left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3} \left(-1+\mathrm{Sec}[e+f x]^2\right) \right) \mathrm{Sin}[e+f x] - \frac{1}{6 \sqrt{1-\mathrm{Cos}[e+f x]^2} \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)}$$

$$\left(2 a^2-3 b^2\right) \left(12 \left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{11/3} \mathrm{Sin}[e+f x]+2 (-1)^{1/3} 3^{1/4} \left(1+\sqrt{3}\right) \left(-6 \,\mathrm{EllipticE}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right] - \left(-3+\sqrt{3}\right) \mathrm{EllipticF}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right) \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2 \sqrt{\frac{\left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} \mathrm{Sec}[e+f x]^{5/3}$$

$$\sqrt{\frac{(-1)^{2/3}-(-1)^{1/3} \mathrm{Sec}[e+f x]^{2/3}+\mathrm{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}} \mathrm{Sin}[e+f x]+4 \left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{5/3} \left(-1+\mathrm{Sec}[e+f x]^2\right) \mathrm{Sin}[e+f x]+$$

$$\frac{1}{2 \sqrt{\frac{\left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}}} (-1)^{1/3} 3^{1/4} \left(-6 \,\mathrm{EllipticE}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right] - \left(-3+\sqrt{3}\right) \mathrm{EllipticF}\left[\mathrm{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}}\right], \frac{1}{4} \left(2+\sqrt{3}\right)\right]\right)$$

$$\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^3 \sqrt{\frac{(-1)^{2/3}-(-1)^{1/3} \mathrm{Sec}[e+f x]^{2/3}+\mathrm{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}}$$

$$\left(\frac{2 \left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{5/3} \mathrm{Sin}[e+f x]}{3 \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}-\frac{4 \left(1+\sqrt{3}\right) \left((-1)^{1/3}+\mathrm{Sec}[e+f x]^{2/3}\right) \mathrm{Sec}[e+f x]^{7/3} \mathrm{Sin}[e+f x]}{3 \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^3}+\right.$$

$$\left.\frac{2 \,\mathrm{Sec}[e+f x]^{7/3} \mathrm{Sin}[e+f x]}{3 \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^2}\right)+(-1)^{1/3} 3^{1/4} \left((-1)^{1/3}+\left(1+\sqrt{3}\right) \mathrm{Sec}[e+f x]^{2/3}\right)^3$$

$$\sqrt{\frac{\left((-1)^{1/3}+\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}\sqrt{\frac{(-1)^{2/3}-(-1)^{1/3}\text{Sec}[e+f x]^{2/3}+\text{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}$$

$$\left(\left(\left(-3+\sqrt{3}\right)\left(-\frac{2\left(1+\sqrt{3}\right)\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]}{3\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}-\right.\right.\right.$$

$$\left.\left.\frac{2\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]}{3\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)}\right)\right)\Big/\left(\sqrt{1-\frac{1}{4}\left(2+\sqrt{3}\right)\left(1-\frac{\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}\right)}\right.$$

$$\left.\sqrt{1-\frac{\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}\right)+\left(6\sqrt{1-\frac{1}{4}\left(2+\sqrt{3}\right)\left(1-\frac{\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}\right)}\right.$$

$$\left(-\frac{2\left(1+\sqrt{3}\right)\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]}{3\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}-\right.$$

$$\left.\left.\frac{2\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]}{3\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)}\right)\right)\Big/\left(\sqrt{1-\frac{\left((-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}\right)\right)+$$

$$\frac{1}{2\sqrt{\frac{(-1)^{2/3}-(-1)^{1/3}\text{Sec}[e+f x]^{2/3}+\text{Sec}[e+f x]^{4/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}}(-1)^{1/3}\,3^{1/4}\left(-6\,\text{EllipticE}\left[\text{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\right],\right.\right.$$

$$\left.\frac{1}{4}\left(2+\sqrt{3}\right)\right]-\left(-3+\sqrt{3}\right)\text{EllipticF}\left[\text{ArcCos}\left[\frac{(-1)^{1/3}-\left(-1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}{(-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}}\right],\frac{1}{4}\left(2+\sqrt{3}\right)\right]\right)$$

$$\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^3\sqrt{\frac{\left((-1)^{1/3}+\text{Sec}[e+f x]^{2/3}\right)\text{Sec}[e+f x]^{2/3}}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^2}}$$

$$\left(-\left(4\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{5/3}\left((-1)^{2/3}-(-1)^{1/3}\text{Sec}[e+f x]^{2/3}+\text{Sec}[e+f x]^{4/3}\right)\text{Sin}[e+f x]\right)\Big/\right.$$

$$\left(\left(3\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^{3}\right)+\frac{-\frac{2}{3}(-1)^{1/3}\text{Sec}[e+f x]^{5/3}\text{Sin}[e+f x]+\frac{4}{3}\text{Sec}[e+f x]^{7/3}\text{Sin}[e+f x]}{\left((-1)^{1/3}+\left(1+\sqrt{3}\right)\text{Sec}[e+f x]^{2/3}\right)^{2}}\right)\right)+$$

$$\left.\left.\left.\frac{\left(2 a^{2}-3 b^{2}\right)\text{Tan}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^{2}}}-4 a b\,\text{Sec}[e+f x]\,\text{Tan}[e+f x]+2\left(2 a^{2}-3 b^{2}\right)\sqrt{1-\text{Cos}[e+f x]^{2}}\,\text{Sec}[e+f x]^{2}\,\text{Tan}[e+f x]\right)\right)\right)$$

Problem 632: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{(d\,\text{Sec}[e+f x])^{5/3}}{a+b\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 6, 552 leaves, 16 steps) :

$$-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 b^{1/3}\left(\text{Sec}[e+f x]^{2}\right)^{1/6}}{\sqrt{3}\left(a^{2}+b^{2}\right)^{1/6}}\right](d\,\text{Sec}[e+f x])^{5/3}}{2 b^{2/3}\left(a^{2}+b^{2}\right)^{1/6} f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}+\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3}\left(\text{Sec}[e+f x]^{2}\right)^{1/6}}{\sqrt{3}\left(a^{2}+b^{2}\right)^{1/6}}\right](d\,\text{Sec}[e+f x])^{5/3}}{2 b^{2/3}\left(a^{2}+b^{2}\right)^{1/6} f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}-$$

$$\frac{\text{ArcTanh}\left[\frac{b^{1/3}\left(\text{Sec}[e+f x]^{2}\right)^{1/6}}{\left(a^{2}+b^{2}\right)^{1/6}}\right](d\,\text{Sec}[e+f x])^{5/3}}{b^{2/3}\left(a^{2}+b^{2}\right)^{1/6} f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}+\frac{\text{Log}\left[\left(a^{2}+b^{2}\right)^{1/3}-b^{1/3}\left(a^{2}+b^{2}\right)^{1/6}\left(\text{Sec}[e+f x]^{2}\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f x]^{2}\right)^{1/3}\right](d\,\text{Sec}[e+f x])^{5/3}}{4 b^{2/3}\left(a^{2}+b^{2}\right)^{1/6} f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}-$$

$$\frac{\text{Log}\left[\left(a^{2}+b^{2}\right)^{1/3}+b^{1/3}\left(a^{2}+b^{2}\right)^{1/6}\left(\text{Sec}[e+f x]^{2}\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f x]^{2}\right)^{1/3}\right](d\,\text{Sec}[e+f x])^{5/3}}{4 b^{2/3}\left(a^{2}+b^{2}\right)^{1/6} f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},1,\frac{1}{6},\frac{3}{2},\frac{b^{2}\text{Tan}[e+f x]^{2}}{a^{2}},-\text{Tan}[e+f x]^{2}\right](d\,\text{Sec}[e+f x])^{5/3}\,\text{Tan}[e+f x]}{a f\left(\text{Sec}[e+f x]^{2}\right)^{5/6}}$$

Result (type 6, 276 leaves) :

$$-\left(24\, d^2\, \text{AppellF1}\left[\frac{1}{3},\frac{1}{6},\frac{1}{6},\frac{4}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right](a+b \operatorname{Tan}[e+f x])\right)\Big/$$
$$\left(b f (d \operatorname{Sec}[e+f x])^{1/3}\left((a+i b)\, \text{AppellF1}\left[\frac{4}{3},\frac{1}{6},\frac{7}{6},\frac{7}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]+(a-i b)\, \text{AppellF1}\left[\frac{4}{3},\frac{7}{6},\frac{1}{6},\frac{7}{3},\right.\right.\right.$$
$$\left.\left.\left.\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]+8\, \text{AppellF1}\left[\frac{1}{3},\frac{1}{6},\frac{1}{6},\frac{4}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right](a+b \operatorname{Tan}[e+f x])\right)\right)$$

- **Problem 633: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{(d \operatorname{Sec}[e+f x])^{1/3}}{a+b \operatorname{Tan}[e+f x]}\, dx$$

Optimal (type 6, 552 leaves, 16 steps) :

$$\frac{\sqrt{3}\, b^{2/3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2 b^{1/3} \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}{\sqrt{3} \left(a^2+b^2\right)^{1/6}}\right] (d \operatorname{Sec}[e+f x])^{1/3}}{2 \left(a^2+b^2\right)^{5/6} f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}-$$
$$\frac{\sqrt{3}\, b^{2/3} \operatorname{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2 b^{1/3} \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}{\sqrt{3} \left(a^2+b^2\right)^{1/6}}\right] (d \operatorname{Sec}[e+f x])^{1/3}}{2 \left(a^2+b^2\right)^{5/6} f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}-\frac{b^{2/3} \operatorname{ArcTanh}\left[\frac{b^{1/3} \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{1/6}}\right] (d \operatorname{Sec}[e+f x])^{1/3}}{\left(a^2+b^2\right)^{5/6} f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}+$$
$$\frac{b^{2/3} \operatorname{Log}\left[\left(a^2+b^2\right)^{1/3}-b^{1/3} \left(a^2+b^2\right)^{1/6} \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}+b^{2/3} \left(\operatorname{Sec}[e+f x]^2\right)^{1/3}\right] (d \operatorname{Sec}[e+f x])^{1/3}}{4 \left(a^2+b^2\right)^{5/6} f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}-$$
$$\frac{b^{2/3} \operatorname{Log}\left[\left(a^2+b^2\right)^{1/3}+b^{1/3} \left(a^2+b^2\right)^{1/6} \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}+b^{2/3} \left(\operatorname{Sec}[e+f x]^2\right)^{1/3}\right] (d \operatorname{Sec}[e+f x])^{1/3}}{4 \left(a^2+b^2\right)^{5/6} f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}+$$
$$\frac{\text{AppellF1}\left[\frac{1}{2},1,\frac{5}{6},\frac{3}{2},\frac{b^2 \operatorname{Tan}[e+f x]^2}{a^2},-\operatorname{Tan}[e+f x]^2\right] (d \operatorname{Sec}[e+f x])^{1/3} \operatorname{Tan}[e+f x]}{a f \left(\operatorname{Sec}[e+f x]^2\right)^{1/6}}$$

Result (type 6, 280 leaves) :

$$-\left(48\, d^2\, \text{AppellF1}\left[\frac{5}{3},\frac{5}{6},\frac{5}{6},\frac{8}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right](a+b \operatorname{Tan}[e+f x])\right)\Big/$$
$$\left(5 b f (d \operatorname{Sec}[e+f x])^{5/3}\left(5 (a+i b)\, \text{AppellF1}\left[\frac{8}{3},\frac{5}{6},\frac{11}{6},\frac{11}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]+5 (a-i b)\, \text{AppellF1}\left[\frac{8}{3},\frac{11}{6},\frac{5}{6},\frac{11}{3},\right.\right.\right.$$
$$\left.\left.\left.\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]+16\, \text{AppellF1}\left[\frac{5}{3},\frac{5}{6},\frac{5}{6},\frac{8}{3},\frac{a-i b}{a+b \operatorname{Tan}[e+f x]},\frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right](a+b \operatorname{Tan}[e+f x])\right)\right)$$

- **Problem 634: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{1}{(d\,\mathrm{Sec}[e+f\,x])^{1/3}\,(a+b\,\mathrm{Tan}[e+f\,x])}\,dx$$

Optimal (type 6, 579 leaves, 17 steps):

$$\frac{3\,b}{\left(a^2+b^2\right)\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}-\frac{\sqrt{3}\;b^{4/3}\,\mathrm{ArcTan}\Big[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\;\left(a^2+b^2\right)^{1/6}}\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{2\,\left(a^2+b^2\right)^{7/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{\sqrt{3}\;b^{4/3}\,\mathrm{ArcTan}\Big[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\;\left(a^2+b^2\right)^{1/6}}\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{2\,\left(a^2+b^2\right)^{7/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}-\frac{b^{4/3}\,\mathrm{ArcTanh}\Big[\frac{b^{1/3}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{1/6}}\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{7/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{b^{4/3}\,\mathrm{Log}\Big[\left(a^2+b^2\right)^{1/3}-b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/3}\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{4\,\left(a^2+b^2\right)^{7/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}-$$

$$\frac{b^{4/3}\,\mathrm{Log}\Big[\left(a^2+b^2\right)^{1/3}+b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/3}\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}}{4\,\left(a^2+b^2\right)^{7/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{\mathrm{AppellF1}\Big[\frac{1}{2},\,1,\,\frac{7}{6},\,\frac{3}{2},\,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2},\,-\mathrm{Tan}[e+f\,x]^2\Big]\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}\,\mathrm{Tan}[e+f\,x]}{a\,f\,(d\,\mathrm{Sec}[e+f\,x])^{1/3}}$$

Result (type 6, 285 leaves):

$$-\left(60\,d\,\mathrm{AppellF1}\Big[\frac{7}{3},\,\frac{7}{6},\,\frac{7}{6},\,\frac{10}{3},\,\frac{a-\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\Big]\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\right)\Big/$$
$$\Bigg(7\,b\,f\,(d\,\mathrm{Sec}[e+f\,x])^{4/3}\,\Bigg(7\,(a+\mathrm{i}\,b)\,\mathrm{AppellF1}\Big[\frac{10}{3},\,\frac{7}{6},\,\frac{13}{6},\,\frac{13}{3},\,\frac{a-\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\Big]+7\,(a-\mathrm{i}\,b)\,\mathrm{AppellF1}\Big[\frac{10}{3},\,\frac{13}{6},\,\frac{7}{6},\,\frac{13}{3},$$
$$\frac{a-\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\Big]+20\,\mathrm{AppellF1}\Big[\frac{7}{3},\,\frac{7}{6},\,\frac{7}{6},\,\frac{10}{3},\,\frac{a-\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+\mathrm{i}\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\Big]\,(a+b\,\mathrm{Tan}[e+f\,x])\Bigg)\Bigg)$$

- **Problem 635: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(a+b\,\mathrm{Tan}[e+f\,x])}\,dx$$

Optimal (type 6, 581 leaves, 17 steps):

$$\frac{3\,b}{5\left(a^2+b^2\right) f\,(d\,\text{Sec}[e+f\,x])^{5/3}}+\frac{\sqrt{3}\,b^{8/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}}{2\left(a^2+b^2\right)^{11/6} f\,(d\,\text{Sec}[e+f\,x])^{5/3}}-$$

$$\frac{\sqrt{3}\,b^{8/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}}{2\left(a^2+b^2\right)^{11/6} f\,(d\,\text{Sec}[e+f\,x])^{5/3}}-\frac{b^{8/3}\,\text{ArcTanh}\left[\frac{b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}}{\left(a^2+b^2\right)^{11/6} f\,(d\,\text{Sec}[e+f\,x])^{5/3}}+$$

$$\frac{b^{8/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-b^{1/3}\left(a^2+b^2\right)^{1/6}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}}{4\left(a^2+b^2\right)^{11/6} f\,(d\,\text{Sec}[e+f\,x])^{5/3}}-$$

$$\frac{b^{8/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}+b^{1/3}\left(a^2+b^2\right)^{1/6}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}}{4\left(a^2+b^2\right)^{11/6} f\,(d\,\text{Sec}[e+f\,x])^{5/3}}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},1,\frac{11}{6},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\left(\text{Sec}[e+f\,x]^2\right)^{5/6}\,\text{Tan}[e+f\,x]}{a\,f\,(d\,\text{Sec}[e+f\,x])^{5/3}}$$

Result (type 6, 18 391 leaves) :

$$\left(\frac{3\left(b+a\sqrt{1-\text{Cos}[e+f\,x]^2}\;\text{Sec}[e+f\,x]\right)}{5\left(a^2+b^2\right)\text{Sec}[e+f\,x]^{5/3}}+\right.$$

$$3\left(\left((-1)^{5/6}\,b^{8/3}\,\text{ArcTan}\left[\frac{-\sqrt{3}\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f\,x]^2\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\right.\right.\right.$$

$$\left.\left.\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\right)\Big/\left(6\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\;\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$

$$\left((-1)^{5/6}\,b^{8/3}\,\text{ArcTan}\left[\frac{\sqrt{3}\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f\,x]^2\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\right.\right.$$

$$\left.\left.\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\right)\Big/\left(6\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\;\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$

$$\left((-1)^{5/6}\,b^{8/3}\,\text{ArcTan}\left[\frac{(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f\,x]^2\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\right)\Big/$$

$$\left(3\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\;\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)-$$

$$\left((-1)^{5/6}\,b^{8/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\;b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}\right]\right.$$

$$\text{Sec}[e+f x]^2 \left(-b+b \text{Sec}[e+f x]^2+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right)\Big) \Big/$$

$$\left(4 \sqrt{3} \left(a^2+b^2\right)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\Big((-1)^{5/6} b^{8/3} \text{Log}\Big[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6} \sqrt{3} b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}\Big]$$

$$\text{Sec}[e+f x]^2 \left(-b+b \text{Sec}[e+f x]^2+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right)\Big) \Big/$$

$$\left(4 \sqrt{3} \left(a^2+b^2\right)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\Big(14 a^3 \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b \text{Sec}[e+f x]^2+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right)\Big) \Big/$$

$$\Big(5 \left(-1+\text{Sec}[e+f x]^2\right) \Big(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \Big(2 b^2 \text{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},$$

$$\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\Big)-$$

$$\Big(49 a b^2 \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b \text{Sec}[e+f x]^2+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right)\Big) \Big/$$

$$\Big(5 \left(-1+\text{Sec}[e+f x]^2\right) \Big(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \Big(2 b^2 \text{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},$$

$$\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\Big)+$$

$$\Big(26 a b^2 \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{16/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b \text{Sec}[e+f x]^2+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right)\Big) \Big/$$

$$\Big(35 \left(-1+\text{Sec}[e+f x]^2\right) \Big(13 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \Big(2 b^2 \text{AppellF1}\Big[\frac{13}{6},\frac{1}{2},2,$$

$$\frac{19}{6},\ \text{Sec}[e+f\,x]^2,\ \frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{13}{6},\ \frac{3}{2},\ 1,\ \frac{19}{6},\ \text{Sec}[e+f\,x]^2,\ \frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\Big)\ \text{Sec}[e+f\,x]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Big)\Big)\Big)\Big/$$

$$\Bigg(f\,(d\,\text{Sec}[e+f\,x])^{5/3}\,(a+b\,\text{Tan}[e+f\,x])\ \Bigg(-\frac{\left(b+a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]\right)\text{Sin}[e+f\,x]}{\left(a^2+b^2\right)\text{Sec}[e+f\,x]^{2/3}}+$$

$$\frac{3\left(\frac{a\,\text{Sin}[e+f\,x]}{\sqrt{1-\text{Cos}[e+f\,x]^2}}+a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]\ \text{Tan}[e+f\,x]\right)}{5\left(a^2+b^2\right)\text{Sec}[e+f\,x]^{5/3}}+$$

$$3\Bigg(-\left(b^3\,\text{Sec}[e+f\,x]^{10/3}\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\right)\Big/\Bigg(9\left(a^2+b^2\right)^2$$

$$\left(1+\frac{\left(-\sqrt{3}\ \left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}\right)^2}{\left(a^2+b^2\right)^{1/3}}\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\left(b^3\,\text{Sec}[e+f\,x]^{10/3}\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\right)\Big/\Bigg(9\left(a^2+b^2\right)^2$$

$$\left(1+\frac{\left(\sqrt{3}\ \left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}\right)^2}{\left(a^2+b^2\right)^{1/3}}\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\left(b^3\,\text{Sec}[e+f\,x]^{10/3}\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(9\left(a^2+b^2\right)^2\left(1+\frac{(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}}{\left(a^2+b^2\right)^{1/3}}\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\ \text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$

$$\Bigg(28\,a^3\,b^2\,\text{AppellF1}\Big[\frac{1}{6},\ \frac{1}{2},\ 1,\ \frac{7}{6},\ \text{Sec}[e+f\,x]^2,\ \frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\ \text{Sec}[e+f\,x]^{19/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\Bigg)\Big/$$

$$\left(5\left(-1+\text{Sec}[e+f x]^2\right)\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(98\,a\,b^4\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{19/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\Big/$$

$$\left(5\left(-1+\text{Sec}[e+f x]^2\right)\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(52\,a\,b^4\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{25/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\Big/$$

$$\left(35\left(-1+\text{Sec}[e+f x]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(28\,a^3\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{19/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\Big/$$

$$\left(5\left(-1+\text{Sec}[e+f x]^2\right)^2\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right.$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^3+b\,\mathrm{Sec}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(98\,a\,b^2\,\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^{19/3}\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\mathrm{Sec}[e+f x]^2+a\,\mathrm{Sec}[e+f x]\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}\right)\mathrm{Sin}[e+f x]\Bigg)\Bigg/$$

$$\Bigg(5\left(-1+\mathrm{Sec}[e+f x]^2\right)^2\Bigg(7\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\mathrm{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^3+b\,\mathrm{Sec}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(28\,a^3\,\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^{13/3}\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\mathrm{Sec}[e+f x]^2+a\,\mathrm{Sec}[e+f x]\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}\right)\mathrm{Sin}[e+f x]\Bigg)\Bigg/$$

$$\Bigg(3\left(-1+\mathrm{Sec}[e+f x]^2\right)\Bigg(7\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\mathrm{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^3+b\,\mathrm{Sec}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(98\,a\,b^2\,\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^{13/3}\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\mathrm{Sec}[e+f x]^2+a\,\mathrm{Sec}[e+f x]\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}\right)\mathrm{Sin}[e+f x]\Bigg)\Bigg/$$

$$\Bigg(3\left(-1+\mathrm{Sec}[e+f x]^2\right)\Bigg(7\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\mathrm{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f x]^2}\ \mathrm{Sec}[e+f x]^3+b\,\mathrm{Sec}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(52\,a\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^{25/3}\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\mathrm{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(35\left(-1+\mathrm{Sec}[e+f\,x]^2\right)^2\Bigg(13\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{13}{6},\frac{1}{2},\right.$$

$$\left.2,\frac{19}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\Bigg)\mathrm{Sec}[e+f\,x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\Bigg)+$$

$$\Bigg(416\,a\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^{19/3}\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\mathrm{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(105\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\Bigg(13\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\mathrm{AppellF1}\left[\frac{13}{6},\frac{1}{2},\right.$$

$$\left.2,\frac{19}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\Bigg)\mathrm{Sec}[e+f\,x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg((-1)^{5/6}\,b^{8/3}\,\mathrm{Sec}[e+f\,x]^2\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)$$

$$\left(-\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{4/3}\,\mathrm{Sin}[e+f\,x]}{\sqrt{3}}+\frac{2}{3}(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{5/3}\,\mathrm{Sin}[e+f\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(4\sqrt{3}\left(a^2+b^2\right)^{11/6}\left(\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right)$$

$$\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\Bigg)+$$

$$\Bigg((-1)^{5/6}\,b^{8/3}\,\mathrm{Sec}[e+f\,x]^2\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)$$

$$\left(\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{4/3}\,\mathrm{Sin}[e+f\,x]}{\sqrt{3}}+\frac{2}{3}(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{5/3}\,\mathrm{Sin}[e+f\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(4\sqrt{3}\left(a^2+b^2\right)^{11/6}\left(\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right)$$

$$\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\Bigg)+$$

$$\left((-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{-\sqrt{3}\,(a^2+b^2)^{1/6}+2\,(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$
$$\left(3\,(a^2+b^2)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$
$$\left((-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{\sqrt{3}\,(a^2+b^2)^{1/6}+2\,(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$
$$\left(3\,(a^2+b^2)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$
$$\left(2\,(-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$
$$\left(3\,(a^2+b^2)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$
$$\left((-1)^{5/6} b^{8/3} \text{Log}\left[(a^2+b^2)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}(a^2+b^2)^{1/6}\,\text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3}\,\text{Sec}[e+f x]^{2/3}\right]\right.$$
$$\left.\text{Sec}[e+f x]^2\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$
$$\left(2\sqrt{3}\,(a^2+b^2)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$
$$\left((-1)^{5/6} b^{8/3} \text{Log}\left[(a^2+b^2)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}(a^2+b^2)^{1/6}\,\text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3}\,\text{Sec}[e+f x]^{2/3}\right]\right.$$
$$\left.\text{Sec}[e+f x]^2\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$
$$\left(2\sqrt{3}\,(a^2+b^2)^{11/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$
$$\left(7\,a^3\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\right.$$
$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$
$$\left.\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\right)\Big/\left(5\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\left(49\,a\,b^2\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\left.\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\right)\Big/\left(10\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)+$$

$$\left(13\,a\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{16/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\left.\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\right)\Big/\left(35\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3+b\,\text{Sec}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\left(14\,a^3\,\text{Sec}[e+f x]^{10/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right.$$

$$\left(\frac{2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{7\left(a^2+b^2\right)}+\right.$$

$$\frac{1}{7}\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(5\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+fx]^2}\;\text{Sec}[e+fx]^3+b\,\text{Sec}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)-$$

$$\Bigg(49\,a\,b^2\,\text{Sec}[e+fx]^{10/3}\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\;\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)$$

$$\Bigg(\frac{2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]}{7\left(a^2+b^2\right)}+$$

$$\frac{1}{7}\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(5\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+fx]^2}\;\text{Sec}[e+fx]^3+b\,\text{Sec}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)+$$

$$\Bigg(26\,a\,b^2\,\text{Sec}[e+fx]^{16/3}\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\;\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)$$

$$\Bigg(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]}{13\left(a^2+b^2\right)}+$$

$$\frac{7}{13}\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\Bigg)\Bigg)\Bigg/$$

$$\Bigg(35\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},\right.$$

$$2,\ \frac{19}{6},\ \mathrm{Sec}[e+f\,x]^2,\ \frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\mathrm{AppellF1}\Big[\frac{13}{6},\ \frac{3}{2},\ 1,\ \frac{19}{6},\ \mathrm{Sec}[e+f\,x]^2,\ \frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\Bigg)\,\mathrm{Sec}[e+f\,x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg((-1)^{5/6}\,b^{8/3}\,\mathrm{ArcTan}\Big[\frac{-\sqrt{3}\,\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\Big]\,\mathrm{Sec}[e+f\,x]^2$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\Bigg(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}$$

$$\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\Bigg)\Bigg)\Big/$$

$$\left(6\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)-$$

$$\Bigg((-1)^{5/6}\,b^{8/3}\,\mathrm{ArcTan}\Big[\frac{\sqrt{3}\,\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\Big]\,\mathrm{Sec}[e+f\,x]^2$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\Bigg(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}$$

$$\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\Bigg)\Bigg)\Big/$$

$$\left(6\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)-$$

$$\Bigg((-1)^{5/6}\,b^{8/3}\,\mathrm{ArcTan}\Big[\frac{(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\Big]\,\mathrm{Sec}[e+f\,x]^2\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)$$

$$\Bigg(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+$$

$$2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\Bigg)\Bigg)\Big/$$

$$\left(3\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)+$$

$$\left((-1)^{5/6}\,b^{8/3}\,\mathrm{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right]\mathrm{Sec}[e+f\,x]^2\right.$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$

$$\left.\left.\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(4\sqrt{3}\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)-$$

$$\left((-1)^{5/6}\,b^{8/3}\,\mathrm{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right]\mathrm{Sec}[e+f\,x]^2\right.$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$

$$\left.\left.\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(4\sqrt{3}\left(a^2+b^2\right)^{11/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^3+b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)+$$

$$\left(14\,a^3\,\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^{10/3}\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right.$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]\,\mathrm{Tan}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+3\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$

$$\left.\left.\mathrm{Sec}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(5\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\left(7\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]^3+b\, \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)^2\Big) +$$

$$\Big(49\, a\, b^2\, \text{AppellF1}\Big[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\, \text{Sec}[e+f x]^2+a\, \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right) \Big(\frac{a\, \text{Sec}[e+f x]\, \text{Tan}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}} + 3\, a \sqrt{1-\text{Cos}[e+f x]^2}$$

$$\text{Sec}[e+f x]^3\, \text{Tan}[e+f x] + 2\, b\, \text{Sec}[e+f x]^4\, \text{Tan}[e+f x] + 2\, b\, \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right) \text{Tan}[e+f x]\Big)\Big) \Big/$$

$$\Big(5 \left(-1+\text{Sec}[e+f x]^2\right) \Big(7 \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + 3 \Big(2\, b^2\, \text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 2,$$

$$\frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]^3+b\, \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)^2\Big) -$$

$$\Big(26\, a\, b^2\, \text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] \text{Sec}[e+f x]^{16/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\, \text{Sec}[e+f x]^2+a\, \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right) \Big(\frac{a\, \text{Sec}[e+f x]\, \text{Tan}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}} + 3\, a \sqrt{1-\text{Cos}[e+f x]^2}$$

$$\text{Sec}[e+f x]^3\, \text{Tan}[e+f x] + 2\, b\, \text{Sec}[e+f x]^4\, \text{Tan}[e+f x] + 2\, b\, \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right) \text{Tan}[e+f x]\Big)\Big) \Big/$$

$$\Big(35 \left(-1+\text{Sec}[e+f x]^2\right) \Big(13 \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + 3 \Big(2\, b^2\, \text{AppellF1}\Big[\frac{13}{6}, \frac{1}{2},$$

$$2, \frac{19}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{13}{6}, \frac{3}{2}, 1, \frac{19}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]^3+b\, \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)^2\Big) +$$

$$\left((-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{-\sqrt{3}\,(a^2+b^2)^{1/6}+2\,(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left(2 b \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \text{Tan}[e+f x]+\right.$$
$$\left.\left.\frac{a \text{Sec}[e+f x] \left(-2 \text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$
$$\left(6\,(a^2+b^2)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$
$$\left((-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{\sqrt{3}\,(a^2+b^2)^{1/6}+2\,(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left(2 b \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \text{Tan}[e+f x]+\right.$$
$$\left.\left.\frac{a \text{Sec}[e+f x] \left(-2 \text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$
$$\left(6\,(a^2+b^2)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$
$$\left((-1)^{5/6} b^{8/3} \text{ArcTan}\left[\frac{(-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{(a^2+b^2)^{1/6}}\right] \text{Sec}[e+f x]^2\right.$$
$$\left(2 b \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \text{Tan}[e+f x]+\right.$$
$$\left.\left.\frac{a \text{Sec}[e+f x] \left(-2 \text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$
$$\left(3\,(a^2+b^2)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+b \text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$
$$\left((-1)^{5/6} b^{8/3} \text{Log}\left[(a^2+b^2)^{1/3}-(-1)^{1/6} \sqrt{3}\, b^{1/3} (a^2+b^2)^{1/6} \text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}\right]\right.$$

$$\text{Sec}[e+f x]^2 \left(2 b \,\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]+a \,\text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a \,\text{Sec}[e+f x] \left(-2 \,\text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \,\text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right) \Big/$$

$$\left(4 \sqrt{3} \left(a^2+b^2\right)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \,\text{Sec}[e+f x]^3+b \,\text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{5/6} b^{8/3} \,\text{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6} \sqrt{3} \,b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3} \,\text{Sec}[e+f x]^{2/3}\right]\right.$$

$$\text{Sec}[e+f x]^2 \left(2 b \,\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]+a \,\text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a \,\text{Sec}[e+f x] \left(-2 \,\text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \,\text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right) \Big/$$

$$\left(4 \sqrt{3} \left(a^2+b^2\right)^{11/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2} \,\text{Sec}[e+f x]^3+b \,\text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(14 a^3 \,\text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \,\text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(2 b \,\text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]+a \,\text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)} \,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a \,\text{Sec}[e+f x] \left(-2 \,\text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2 \,\text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right) \Big/$$

$$\left(5 \left(-1+\text{Sec}[e+f x]^2\right) \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \left(2 b^2 \,\text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 2,\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right)$$

$$\left.\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2} \,\text{Sec}[e+f x]^3+b \,\text{Sec}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(49\,a\,b^2\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{10/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$
$$\left(2\,b\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\,\text{Tan}[e+f\,x]+\right.$$
$$\left.\left.\frac{a\,\text{Sec}[e+f\,x]\left(-2\,\text{Cos}[e+f\,x]\left(-1+\text{Sec}[e+f\,x]^2\right)\text{Sin}[e+f\,x]+2\,\text{Tan}[e+f\,x]\right)}{2\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}}\right)\right)\Big/$$
$$\left(5\left(-1+\text{Sec}[e+f\,x]^2\right)\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.\right.\right.\right.$$
$$\left.\left.\left.\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)$$
$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$
$$\left(26\,a\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{16/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$
$$\left(2\,b\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\,\text{Tan}[e+f\,x]+\right.$$
$$\left.\left.\frac{a\,\text{Sec}[e+f\,x]\left(-2\,\text{Cos}[e+f\,x]\left(-1+\text{Sec}[e+f\,x]^2\right)\text{Sin}[e+f\,x]+2\,\text{Tan}[e+f\,x]\right)}{2\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}}\right)\right)\Big/$$
$$\left(35\left(-1+\text{Sec}[e+f\,x]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},\right.\right.\right.\right.$$
$$\left.\left.\left.2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)$$
$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$
$$\left(14\,a^3\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{10/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$
$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\left(6\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\right.\right.\right.$$

$$\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]+$$

$$7\left(a^2+b^2\right)\left(\frac{2 b^2 \operatorname{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{7\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{1}{7} \operatorname{AppellF1}\Big[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]\right)+$$

$$3 \operatorname{Sec}[e+f x]^2\left(2 b^2\left(\frac{28 b^2 \operatorname{AppellF1}\Big[\frac{13}{6},\frac{1}{2},3,\frac{19}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\frac{7}{13} \operatorname{AppellF1}\Big[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{14 b^2 \operatorname{AppellF1}\Big[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\left.\left.\left.\frac{21}{13} \operatorname{AppellF1}\Big[\frac{13}{6},\frac{5}{2},1,\frac{19}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]\right)\right)\right)\right)\right) \Big/$$

$$\left(5\left(-1+\operatorname{Sec}[e+f x]^2\right)\left(7\left(a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]+3\left(2 b^2 \operatorname{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,\right.\right.\right.$$

$$\left.\left.\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]\right) \operatorname{Sec}[e+f x]^2\right)^2$$

$$\left.\left(-a^2+b^2\left(-1+\operatorname{Sec}[e+f x]^2\right)\right)\left(a \sqrt{1-\operatorname{Cos}[e+f x]^2} \operatorname{Sec}[e+f x]^3+b \operatorname{Sec}[e+f x]^2\left(-1+\operatorname{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(49 a b^2 \operatorname{AppellF1}\Big[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big] \operatorname{Sec}[e+f x]^{10/3} \sqrt{\operatorname{Cos}[e+f x]^2\left(-1+\operatorname{Sec}[e+f x]^2\right)}\right.$$

$$\left(-b+b \operatorname{Sec}[e+f x]^2+a \operatorname{Sec}[e+f x] \sqrt{\operatorname{Cos}[e+f x]^2\left(-1+\operatorname{Sec}[e+f x]^2\right)}\right)\left(6\left(2 b^2 \operatorname{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\right.\right.$$

$$\left.\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \operatorname{AppellF1}\Big[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\operatorname{Sec}[e+f x]^2,\frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\Big]\right) \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]+$$

$$7\left(a^2+b^2\right)\left(\frac{2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{7\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{1}{7}\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$3\,\text{Sec}[e+f\,x]^2\left(2\,b^2\left(\frac{28\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},3,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{13\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{13\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\left.\left.\frac{21}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{5}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(5\left(-1+\text{Sec}[e+f\,x]^2\right)\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)^2$$

$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)-$$

$$\left(26\,a\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{16/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\left(6\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$13\left(a^2+b^2\right)\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{13\left(a^2+b^2\right)}+\right.$$

$$\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+$$

$$3\,\text{Sec}[e+f\,x]^2\left(2\,b^2\left(\frac{52\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{1}{2},3,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{19\,(a^2+b^2)}+\right.\right.$$

$$\left.\frac{13}{19}\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$(a^2+b^2)\left(\frac{26\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{19\,(a^2+b^2)}+\right.$$

$$\left.\left.\left.\left.\frac{39}{19}\,\text{AppellF1}\left[\frac{19}{6},\frac{5}{2},1,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(35\,(-1+\text{Sec}[e+f\,x]^2)\left(13\,(a^2+b^2)\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.\right.\right.\right.$$

$$\left.\left.\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+(a^2+b^2)\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\Big)^2$$

$$\left.\left.\left.(-a^2+b^2\,(-1+\text{Sec}[e+f\,x]^2))\left(a\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^3+b\,\text{Sec}[e+f\,x]^2\,(-1+\text{Sec}[e+f\,x]^2)\right)\right)\right)\right)$$

- **Problem 636: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f\,x])^{5/3}}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 6, 687 leaves, 18 steps):

$$-\frac{a\,\mathrm{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{\sqrt{3}\,(a^2+b^2)^{1/6}}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{2\,\sqrt{3}\,b^{2/3}\,(a^2+b^2)^{7/6}\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}+$$

$$\frac{a\,\mathrm{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{\sqrt{3}\,(a^2+b^2)^{1/6}}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{2\,\sqrt{3}\,b^{2/3}\,(a^2+b^2)^{7/6}\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}-\frac{a\,\mathrm{ArcTanh}\left[\frac{b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{(a^2+b^2)^{1/6}}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{3\,b^{2/3}\,(a^2+b^2)^{7/6}\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}+$$

$$\frac{a\,\mathrm{Log}\left[(a^2+b^2)^{1/3}-b^{1/3}\,(a^2+b^2)^{1/6}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}+b^{2/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/3}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{12\,b^{2/3}\,(a^2+b^2)^{7/6}\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}-$$

$$\frac{a\,\mathrm{Log}\left[(a^2+b^2)^{1/3}+b^{1/3}\,(a^2+b^2)^{1/6}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}+b^{2/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/3}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{12\,b^{2/3}\,(a^2+b^2)^{7/6}\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}+$$

$$\frac{\mathrm{AppellF1}\left[\frac{1}{2},\,2,\,\frac{1}{6},\,\frac{3}{2},\,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,\mathrm{Tan}[e+f\,x]}{a^2\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}+$$

$$\frac{b^2\,\mathrm{AppellF1}\left[\frac{3}{2},\,2,\,\frac{1}{6},\,\frac{5}{2},\,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,\mathrm{Tan}[e+f\,x]^3}{3\,a^4\,f\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}-\frac{a\,b\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}{(a^2+b^2)\,f\,(a^2-b^2\,\mathrm{Tan}[e+f\,x]^2)}$$

Result (type 6, 19 462 leaves) :

$$\frac{1}{f\,(a+b\,\mathrm{Tan}[e+f\,x])^2}\mathrm{Sec}[e+f\,x]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2$$

$$\left(\frac{b\,\mathrm{Cos}[e+f\,x]}{a\,(a-i\,b)\,(a+i\,b)}+\frac{\mathrm{Sin}[e+f\,x]}{(a-i\,b)\,(a+i\,b)}-\frac{b}{(a-i\,b)\,(a+i\,b)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])}\right)-$$

$$\left(4\,\mathrm{AppellF1}\left[\frac{1}{3},\,\frac{1}{6},\,\frac{1}{6},\,\frac{4}{3},\,\frac{a-i\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+i\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\right]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\right)\Big/$$

$$\left(a\,b\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,\left((a+i\,b)\,\mathrm{AppellF1}\left[\frac{4}{3},\,\frac{1}{6},\,\frac{7}{6},\,\frac{7}{3},\,\frac{a-i\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+i\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\right]+\right.\right.$$

$$(a-i\,b)\,\mathrm{AppellF1}\left[\frac{4}{3},\,\frac{7}{6},\,\frac{1}{6},\,\frac{7}{3},\,\frac{a-i\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+i\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\right]+$$

$$\left.\left.8\,\mathrm{AppellF1}\left[\frac{1}{3},\,\frac{1}{6},\,\frac{1}{6},\,\frac{4}{3},\,\frac{a-i\,b}{a+b\,\mathrm{Tan}[e+f\,x]},\,\frac{a+i\,b}{a+b\,\mathrm{Tan}[e+f\,x]}\right]\,(a+b\,\mathrm{Tan}[e+f\,x])\right)\right)-\left(\mathrm{Sec}[e+f\,x]\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\right.$$

$$\left(\frac{6\left(b+a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]\right)}{\left(a^2+b^2\right)\text{Sec}[e+f x]^{1/3}}+\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\right.\right.$$

$$\left.\text{Sec}[e+f x]^{2/3}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(2 b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(2 b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+\left((-1)^{1/6}\left(-a^2+b^2\right)\right.$$

$$\left.\text{ArcTan}\left[\frac{(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}b^{2/3}\text{Sec}[e+f x]^{2/3}\right]\right.$$

$$\left.\text{Sec}[e+f x]^{2/3}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(4 b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\text{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}b^{2/3}\text{Sec}[e+f x]^{2/3}\right]\right.$$

$$\left.\text{Sec}[e+f x]^{2/3}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(4 b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(33 a^3\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6}, \frac{3}{2}, 1, \frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+fx]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\Big) +$$

$$\Big(99\,a\,b^2\,\text{AppellF1}\Big[\frac{5}{6}, \frac{1}{2}, 1, \frac{11}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big]\,\text{Sec}[e+fx]^{10/3}\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\Big)\Big/$$

$$\Big(5\left(-1+\text{Sec}[e+fx]^2\right)\Big(11\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{6}, \frac{1}{2}, 1, \frac{11}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big] + 3\Big(2\,b^2\,\text{AppellF1}\Big[\frac{11}{6}, \frac{1}{2}, 2,$$

$$\frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6}, \frac{3}{2}, 1, \frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+fx]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\Big) -$$

$$\Big(204\,a\,b^2\,\text{AppellF1}\Big[\frac{11}{6}, \frac{1}{2}, 1, \frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big]\,\text{Sec}[e+fx]^{16/3}\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\Big)\Big/$$

$$\Big(11\left(-1+\text{Sec}[e+fx]^2\right)\Big(17\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6}, \frac{1}{2}, 1, \frac{17}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big] + 3\Big(2\,b^2\,\text{AppellF1}\Big[\frac{17}{6}, \frac{1}{2}, 2,$$

$$\frac{23}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{17}{6}, \frac{3}{2}, 1, \frac{23}{6}, \text{Sec}[e+fx]^2, \frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+fx]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\Big)\Big)$$

$$\left(\text{Cos}[e+fx]-\text{Sin}[e+fx]\right)\left(\text{Cos}[e+fx]+\text{Sin}[e+fx]\right)\left(a\,\text{Cos}[e+fx]+b\,\text{Sin}[e+fx]\right)\Big)\Big/$$

$$\Big(6\,a\,f\,\left(a+b\,\text{Tan}[e+fx]\right)^2\Big(-\frac{2\,\text{Sec}[e+fx]^{2/3}\left(b+a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]\right)\text{Sin}[e+fx]}{a^2+b^2} +$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+fx]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+fx]^{5/3}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(3b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+fx]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+fx]^{5/3}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(3b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)+$$

$$\left(2(-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{(-1)^{1/6}b^{1/3}\text{Sec}[e+fx]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+fx]^{5/3}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(3b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+fx]^{1/3}+(-1)^{1/3}b^{2/3}\text{Sec}[e+fx]^{2/3}\right]\right.$$

$$\left.\text{Sec}[e+fx]^{5/3}\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(2\sqrt{3}\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)-$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+fx]^{1/3}+(-1)^{1/3}b^{2/3}\text{Sec}[e+fx]^{2/3}\right]\right.$$

$$\left.\text{Sec}[e+fx]^{5/3}\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(2\sqrt{3}\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^{5/3}+b\,\text{Sec}[e+fx]^{2/3}\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)-$$

$$\left(66a^3b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^{19/3}\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+fx]^2+a\,\text{Sec}[e+fx]\sqrt{\text{Cos}[e+fx]^2\left(-1+\text{Sec}[e+fx]^2\right)}\right)\text{Sin}[e+fx]\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\bigg)-$$

$$\left(198\,a\,b^4\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{19/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\bigg/$$

$$\left(5\left(-1+\text{Sec}[e+f x]^2\right)\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\bigg)+$$

$$\left(408\,a\,b^4\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{25/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\bigg/$$

$$\left(11\left(-1+\text{Sec}[e+f x]^2\right)\left(17\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\bigg)-$$

$$\left(66\,a^3\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{19/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left.\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\right)\bigg/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)^2\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)-$$

$$\Bigg(198\,a\,b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{19/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\Bigg)\Big/$$

$$\Bigg(5\left(-1+\text{Sec}[e+f x]^2\right)^2\Bigg(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(110\,a^3\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{13/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Sec}[e+f x]^2\right)\Bigg(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(66\,a\,b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{13/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Sin}[e+f x]\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Sec}[e+f x]^2\right)\Bigg(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)+$$

$$\Bigg(408\,a\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{25/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(11\left(-1+\text{Sec}[e+f\,x]^2\right)^2\Bigg(17\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+f\,x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg(1088\,a\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{19/3}\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\text{Sin}[e+f\,x]\Bigg)\Bigg/$$

$$\Bigg(11\left(-1+\text{Sec}[e+f\,x]^2\right)\Bigg(17\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+f\,x]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)+$$

$$\Bigg((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\text{Sec}[e+f\,x]^{2/3}\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)$$

$$\left(-\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f\,x]^{4/3}\,\text{Sin}[e+f\,x]}{\sqrt{3}}+\frac{2}{3}(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{5/3}\,\text{Sin}[e+f\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(4\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}\right)$$

$$\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\text{Sec}[e+f\,x]^{2/3}\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)$$

$$\left(\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f\,x]^{4/3}\,\text{Sin}[e+f\,x]}{\sqrt{3}}+\frac{2}{3}(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{5/3}\,\text{Sin}[e+f\,x]\right)\Bigg)\Bigg/$$

$$\Bigg(4\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}\right)$$

$$\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{-\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\left(\frac{a\,\text{Sec}[e+f x]^{2/3}\,\text{Sin}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}}+\frac{5}{3}a\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left.\left.\text{Sec}[e+f x]^{8/3}\,\text{Sin}[e+f x]+2\,b\,\text{Sec}[e+f x]^{11/3}\,\text{Sin}[e+f x]+\frac{2}{3}b\,\text{Sec}[e+f x]^{5/3}\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]\right)\right)\Big/$$

$$\left(2\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\right)-$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{3}\left(a^2+b^2\right)^{1/6}+2(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\left(\frac{a\,\text{Sec}[e+f x]^{2/3}\,\text{Sin}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}}+\frac{5}{3}a\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left.\left.\text{Sec}[e+f x]^{8/3}\,\text{Sin}[e+f x]+2\,b\,\text{Sec}[e+f x]^{11/3}\,\text{Sin}[e+f x]+\frac{2}{3}b\,\text{Sec}[e+f x]^{5/3}\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]\right)\right)\Big/$$

$$\left(2\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\right)-$$

$$\left((-1)^{1/6}\left(-a^2+b^2\right)\text{ArcTan}\left[\frac{(-1)^{1/6}b^{1/3}\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\left(\frac{a\,\text{Sec}[e+f x]^{2/3}\,\text{Sin}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}}+\frac{5}{3}a\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left.\left.\text{Sec}[e+f x]^{8/3}\,\text{Sin}[e+f x]+2\,b\,\text{Sec}[e+f x]^{11/3}\,\text{Sin}[e+f x]+\frac{2}{3}b\,\text{Sec}[e+f x]^{5/3}\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]\right)\right)\Big/$$

$$\left(b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\right)-$$

$$\left((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}b^{2/3}\,\text{Sec}[e+f x]^{2/3}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]^{2/3}\,\mathrm{Sin}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+\frac{5}{3}\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$
$$\left.\left.\mathrm{Sec}[e+f\,x]^{8/3}\,\mathrm{Sin}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^{11/3}\,\mathrm{Sin}[e+f\,x]+\frac{2}{3}\,b\,\mathrm{Sec}[e+f\,x]^{5/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$
$$\left(4\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\;\mathrm{Sec}[e+f\,x]^{5/3}+b\,\mathrm{Sec}[e+f\,x]^{2/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)+$$
$$\left((-1)^{1/6}\sqrt{3}\left(-a^2+b^2\right)\mathrm{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right]\mathrm{Sec}[e+f\,x]^{2/3}\right.$$
$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]^{2/3}\,\mathrm{Sin}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+\frac{5}{3}\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$
$$\left.\left.\mathrm{Sec}[e+f\,x]^{8/3}\,\mathrm{Sin}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^{11/3}\,\mathrm{Sin}[e+f\,x]+\frac{2}{3}\,b\,\mathrm{Sec}[e+f\,x]^{5/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$
$$\left(4\,b^{2/3}\left(a^2+b^2\right)^{7/6}\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\;\mathrm{Sec}[e+f\,x]^{5/3}+b\,\mathrm{Sec}[e+f\,x]^{2/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)-$$
$$\left(33\,a^3\,\mathrm{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^{10/3}\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right.$$
$$\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\mathrm{Sec}[e+f\,x]^{2/3}\,\mathrm{Sin}[e+f\,x]}{\sqrt{1-\mathrm{Cos}[e+f\,x]^2}}+\frac{5}{3}\,a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\right.$$
$$\left.\left.\mathrm{Sec}[e+f\,x]^{8/3}\,\mathrm{Sin}[e+f\,x]+2\,b\,\mathrm{Sec}[e+f\,x]^{11/3}\,\mathrm{Sin}[e+f\,x]+\frac{2}{3}\,b\,\mathrm{Sec}[e+f\,x]^{5/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$
$$\left(\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\left(11\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.\right.\right.\right.$$
$$\left.\left.\left.\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\mathrm{Sec}[e+f\,x]^2\right)$$
$$\left.\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\;\mathrm{Sec}[e+f\,x]^{5/3}+b\,\mathrm{Sec}[e+f\,x]^{2/3}\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)^2\right)-$$

$$\left(99\,a\,b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{10/3}\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\,\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\text{Sec}[e+f\,x]^{2/3}\,\text{Sin}[e+f\,x]}{\sqrt{1-\text{Cos}[e+f\,x]^2}}+\frac{5}{3}\,a\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left.\left.\text{Sec}[e+f\,x]^{8/3}\,\text{Sin}[e+f\,x]+2\,b\,\text{Sec}[e+f\,x]^{11/3}\,\text{Sin}[e+f\,x]+\frac{2}{3}\,b\,\text{Sec}[e+f\,x]^{5/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left(5\,\left(-1+\text{Sec}[e+f\,x]^2\right)\,\left(11\,\left(a^2+b^2\right)\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\,\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},\right.\right.\right.\right.$$

$$\left.\left.2,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\,\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\,\text{Sec}[e+f\,x]^2\right)$$

$$\left.\left(-a^2+b^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\,\left(a\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)^2\right)+$$

$$\left(204\,a\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^{16/3}\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right.$$

$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\,\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\left(\frac{a\,\text{Sec}[e+f\,x]^{2/3}\,\text{Sin}[e+f\,x]}{\sqrt{1-\text{Cos}[e+f\,x]^2}}+\frac{5}{3}\,a\,\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\left.\left.\text{Sec}[e+f\,x]^{8/3}\,\text{Sin}[e+f\,x]+2\,b\,\text{Sec}[e+f\,x]^{11/3}\,\text{Sin}[e+f\,x]+\frac{2}{3}\,b\,\text{Sec}[e+f\,x]^{5/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left(11\,\left(-1+\text{Sec}[e+f\,x]^2\right)\,\left(17\,\left(a^2+b^2\right)\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\,\left(2\,b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},\right.\right.\right.\right.$$

$$\left.\left.2,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\,\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\,\text{Sec}[e+f\,x]^2\right)$$

$$\left.\left(-a^2+b^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\,\left(a\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)^2\right)+$$

$$\left((-1)^{1/3}\,\left(-a^2+b^2\right)\,\text{Sec}[e+f\,x]\,\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\,\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\,\text{Tan}[e+f\,x]\right)\Big/$$

$$\left(3\,b^{1/3}\,\left(a^2+b^2\right)^{4/3}\,\left(1+\frac{\left(-\sqrt{3}\,\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}\right)^2}{\left(a^2+b^2\right)^{1/3}}\right)\right.$$

$$\left.\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/3}\left(-a^2+b^2\right)\text{Sec}[e+f x]\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$

$$\left(3\,b^{1/3}\left(a^2+b^2\right)^{4/3}\left(1+\frac{\left(\sqrt{3}\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}b^{1/3}\,\text{Sec}[e+f x]^{1/3}\right)^2}{\left(a^2+b^2\right)^{1/3}}\right)\right.$$

$$\left.\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/3}\left(-a^2+b^2\right)\text{Sec}[e+f x]\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\text{Tan}[e+f x]\right)\Big/$$

$$\left(3\,b^{1/3}\left(a^2+b^2\right)^{4/3}\left(1+\frac{(-1)^{1/3}b^{2/3}\,\text{Sec}[e+f x]^{2/3}}{\left(a^2+b^2\right)^{1/3}}\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(33\,a^3\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\left.\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\right)\Big/\left(2\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)$$

$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(99\,a\,b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\left.\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\right)\Big/\left(10\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Big) -$$

$$\Big(102\,a\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\,\text{Sec}[e+f x]^{16/3}$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\left(-2\,\text{Cos}[e+f x]\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)\Big)\Big/\Big(11\left(-1+\text{Sec}[e+f x]^2\right)\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\Big(17\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]+3\Big(2\,b^2\,\text{AppellF1}\Big[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\text{Sec}[e+f x]^2,$$

$$\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Big) +$$

$$\frac{6\left(\frac{a\,\text{Sin}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}}+a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]\,\text{Tan}[e+f x]\right)}{\left(a^2+b^2\right)\text{Sec}[e+f x]^{1/3}} +$$

$$\Big(33\,a^3\,\text{Sec}[e+f x]^{10/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)$$

$$\Big(\frac{10\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{11\left(a^2+b^2\right)} +$$

$$\frac{5}{11}\,\text{AppellF1}\Big[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\Big)\Big/$$

$$\Big(\left(-1+\text{Sec}[e+f x]^2\right)\Big(11\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]+3\Big(2\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},2,$$

$$\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big)\,\text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Big) +$$

$$\left(99\,a\,b^2\,\mathrm{Sec}[e+f\,x]^{10/3}\,\sqrt{\mathrm{Cos}[e+f\,x]^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\,\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\right.$$

$$\left(\frac{10\,b^2\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{11\,\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\frac{5}{11}\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(5\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\,\left(11\,\left(a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\mathrm{Sec}[e+f\,x]^2\right)$$

$$\left.\left(-a^2+b^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\,\left(a\,\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^{5/3}+b\,\mathrm{Sec}[e+f\,x]^{2/3}\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\right)-$$

$$\left(204\,a\,b^2\,\mathrm{Sec}[e+f\,x]^{16/3}\,\sqrt{\mathrm{Cos}[e+f\,x]^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\,\left(-b+b\,\mathrm{Sec}[e+f\,x]^2+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\right)\right.$$

$$\left(\frac{22\,b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{17\,\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\frac{11}{17}\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(11\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\,\left(17\,\left(a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\,\left(2\,b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{1}{2},\right.\right.\right.\right.$$

$$\left.\left.\left.2,\frac{23}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\mathrm{Sec}[e+f\,x]^2,\frac{b^2\,\mathrm{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\mathrm{Sec}[e+f\,x]^2\right)$$

$$\left.\left(-a^2+b^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\,\left(a\,\sqrt{1-\mathrm{Cos}[e+f\,x]^2}\,\mathrm{Sec}[e+f\,x]^{5/3}+b\,\mathrm{Sec}[e+f\,x]^{2/3}\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\,\left(-a^2+b^2\right)\,\mathrm{ArcTan}\left[\frac{-\sqrt{3}\,\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\mathrm{Sec}[e+f\,x]^{2/3}\right.$$

$$\left(2\,b\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]+a\,\mathrm{Sec}[e+f\,x]\,\sqrt{\mathrm{Cos}[e+f\,x]^2\,\left(-1+\mathrm{Sec}[e+f\,x]^2\right)}\,\mathrm{Tan}[e+f\,x]+\right.$$

$$\left.\left.\frac{a\,\text{Sec}[e+f x]\,\left(-2\,\text{Cos}[e+f x]\,\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)}{2\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$

$$\left(2\,b^{2/3}\,\left(a^2+b^2\right)^{7/6}\,\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\,\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\,\left(-a^2+b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{3}\,\left(a^2+b^2\right)^{1/6}+2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(2\,b\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+a\,\text{Sec}[e+f x]\,\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}\,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a\,\text{Sec}[e+f x]\,\left(-2\,\text{Cos}[e+f x]\,\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)}{2\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$

$$\left(2\,b^{2/3}\,\left(a^2+b^2\right)^{7/6}\,\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\,\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\,\left(-a^2+b^2\right)\,\text{ArcTan}\left[\frac{(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]\text{Sec}[e+f x]^{2/3}\right.$$

$$\left(2\,b\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+a\,\text{Sec}[e+f x]\,\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}\,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a\,\text{Sec}[e+f x]\,\left(-2\,\text{Cos}[e+f x]\,\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)}{2\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$

$$\left(b^{2/3}\,\left(a^2+b^2\right)^{7/6}\,\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\,\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left((-1)^{1/6}\sqrt{3}\,\left(-a^2+b^2\right)\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{2/3}\right]\right.$$

$$\text{Sec}[e+f x]^{2/3}\,\left(2\,b\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+a\,\text{Sec}[e+f x]\,\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}\,\text{Tan}[e+f x]+\right.$$

$$\left.\left.\frac{a\,\text{Sec}[e+f x]\,\left(-2\,\text{Cos}[e+f x]\,\left(-1+\text{Sec}[e+f x]^2\right)\text{Sin}[e+f x]+2\,\text{Tan}[e+f x]\right)}{2\sqrt{\text{Cos}[e+f x]^2\,\left(-1+\text{Sec}[e+f x]^2\right)}}\right)\right)\Big/$$

$$\left(4\, b^{2/3} \left(a^2+b^2\right)^{7/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\, \text{Sec}[e+f x]^{2/3} \left(-1+\text{Sec}[e+f x]^2\right)\right)\right) -$$

$$\Bigg((-1)^{1/6} \sqrt{3}\ \left(-a^2+b^2\right) \text{Log}\Big[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6} \sqrt{3}\ b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{1/3}+(-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}\Big]$$

$$\text{Sec}[e+f x]^{2/3} \Bigg(2\, b\, \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a\, \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\ \text{Tan}[e+f x]+$$

$$\frac{a\, \text{Sec}[e+f x] \left(-2\, \text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2\, \text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\Bigg)\Bigg) \Big/$$

$$\left(4\, b^{2/3} \left(a^2+b^2\right)^{7/6} \left(a \sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\, \text{Sec}[e+f x]^{2/3} \left(-1+\text{Sec}[e+f x]^2\right)\right)\right) +$$

$$\Bigg(33\, a^3\, \text{AppellF1}\left[\frac{5}{6}, \frac{1}{2}, 1, \frac{11}{6}, \text{Sec}[e+f x]^2, \frac{b^2\, \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\Bigg(2\, b\, \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a\, \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\ \text{Tan}[e+f x]+$$

$$\frac{a\, \text{Sec}[e+f x] \left(-2\, \text{Cos}[e+f x] \left(-1+\text{Sec}[e+f x]^2\right) \text{Sin}[e+f x]+2\, \text{Tan}[e+f x]\right)}{2 \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}}\Bigg)\Bigg) \Big/$$

$$\Bigg(\left(-1+\text{Sec}[e+f x]^2\right) \Bigg(11 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{5}{6}, \frac{1}{2}, 1, \frac{11}{6}, \text{Sec}[e+f x]^2, \frac{b^2\, \text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \Bigg(2\, b^2\, \text{AppellF1}\Big[\frac{11}{6}, \frac{1}{2}, 2,$$

$$\frac{17}{6}, \text{Sec}[e+f x]^2, \frac{b^2\, \text{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right) \text{AppellF1}\left[\frac{11}{6}, \frac{3}{2}, 1, \frac{17}{6}, \text{Sec}[e+f x]^2, \frac{b^2\, \text{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg) \text{Sec}[e+f x]^2\Bigg)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right) \left(a \sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{5/3}+b\, \text{Sec}[e+f x]^{2/3} \left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg) +$$

$$\Bigg(99\, a\, b^2\, \text{AppellF1}\left[\frac{5}{6}, \frac{1}{2}, 1, \frac{11}{6}, \text{Sec}[e+f x]^2, \frac{b^2\, \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{10/3} \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}$$

$$\Bigg(2\, b\, \text{Sec}[e+f x]^2 \text{Tan}[e+f x]+a\, \text{Sec}[e+f x] \sqrt{\text{Cos}[e+f x]^2 \left(-1+\text{Sec}[e+f x]^2\right)}\ \text{Tan}[e+f x]+$$

$$\left.\left.\frac{a\,\text{Sec}[e+f\,x]\,\left(-2\,\text{Cos}[e+f\,x]\,\left(-1+\text{Sec}[e+f\,x]^2\right)\text{Sin}[e+f\,x]+2\,\text{Tan}[e+f\,x]\right)}{2\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}}\right)\right)\Big/$$

$$\Bigg(5\,\left(-1+\text{Sec}[e+f\,x]^2\right)\Bigg(11\,\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+3\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},2,$$
$$\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\Bigg)\text{Sec}[e+f\,x]^2\Bigg)$$
$$\left(-a^2+b^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg(204\,a\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\text{Sec}[e+f\,x]^{16/3}\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}$$
$$\Bigg(2\,b\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\,\text{Tan}[e+f\,x]+$$
$$\left.\left.\frac{a\,\text{Sec}[e+f\,x]\,\left(-2\,\text{Cos}[e+f\,x]\,\left(-1+\text{Sec}[e+f\,x]^2\right)\text{Sin}[e+f\,x]+2\,\text{Tan}[e+f\,x]\right)}{2\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}}\right)\right)\Big/$$

$$\Bigg(11\,\left(-1+\text{Sec}[e+f\,x]^2\right)\Bigg(17\,\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+3\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{17}{6},\frac{1}{2},$$
$$2,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\Bigg)\text{Sec}[e+f\,x]^2\Bigg)$$
$$\left(-a^2+b^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f\,x]^2}\,\text{Sec}[e+f\,x]^{5/3}+b\,\text{Sec}[e+f\,x]^{2/3}\,\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\Bigg)-$$

$$\Bigg(33\,a^3\,\text{AppellF1}\Big[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\text{Sec}[e+f\,x]^{10/3}\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}$$
$$\left(-b+b\,\text{Sec}[e+f\,x]^2+a\,\text{Sec}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]^2\,\left(-1+\text{Sec}[e+f\,x]^2\right)}\right)\Bigg(6\,\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f\,x]^2,$$
$$\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\text{AppellF1}\Big[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\Bigg)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$
$$11\,\left(a^2+b^2\right)\Bigg(\frac{10\,b^2\,\text{AppellF1}\Big[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\Big]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{11\,\left(a^2+b^2\right)}+$$

$$\frac{5}{11}\,\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$3\,\text{Sec}[e+f x]^2\left(2 b^2\left(\frac{44 b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},3,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{17\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\frac{11}{17}\,\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},2,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{22 b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},2,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{17\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\left.\left.\left.\frac{33}{17}\,\text{AppellF1}\left[\frac{17}{6},\frac{5}{2},1,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\right)\right)\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(11\left(a^2+b^2\right)\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)^2$$

$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(99\,a\,b^2\,\text{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^{10/3}\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right.$$

$$\left(-b+b\,\text{Sec}[e+f x]^2+a\,\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]^2\left(-1+\text{Sec}[e+f x]^2\right)}\right)\left(6\left(2 b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$11\left(a^2+b^2\right)\left(\frac{10 b^2\,\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{11\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{5}{11}\,\text{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$3\,\mathrm{Sec}[e+f x]^2\left(2 b^2\left(\frac{44 b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{1}{2},3,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]}{17\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\frac{11}{17}\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},2,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{22 b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},2,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]}{17\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\left.\left.\left.\frac{33}{17}\mathrm{AppellF1}\left[\frac{17}{6},\frac{5}{2},1,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\right)\right)\right)\right)\right)\Big/$$

$$\left(5\left(-1+\mathrm{Sec}[e+f x]^2\right)\left(11\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{5}{6},\frac{1}{2},1,\frac{11}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\left.\left.\left.\frac{17}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{11}{6},\frac{3}{2},1,\frac{17}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\mathrm{Sec}[e+f x]^2\right)^2$$

$$\left.\left(-a^2+b^2\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\mathrm{Cos}[e+f x]^2}\,\mathrm{Sec}[e+f x]^{5/3}+b\,\mathrm{Sec}[e+f x]^{2/3}\left(-1+\mathrm{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(204\,a\,b^2\,\mathrm{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^{16/3}\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}\right.$$

$$\left(-b+b\,\mathrm{Sec}[e+f x]^2+a\,\mathrm{Sec}[e+f x]\sqrt{\mathrm{Cos}[e+f x]^2\left(-1+\mathrm{Sec}[e+f x]^2\right)}\right)\left(6\left(2 b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]+$$

$$17\left(a^2+b^2\right)\left(\frac{22 b^2\,\mathrm{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]}{17\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{11}{17}\mathrm{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\right)+$$

$$3\,\mathrm{Sec}[e+f x]^2\left(2 b^2\left(\frac{68 b^2\,\mathrm{AppellF1}\left[\frac{23}{6},\frac{1}{2},3,\frac{29}{6},\mathrm{Sec}[e+f x]^2,\frac{b^2\,\mathrm{Sec}[e+f x]^2}{a^2+b^2}\right]\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]}{23\left(a^2+b^2\right)}+\right.\right.$$

$$\frac{17}{23}\,\text{AppellF1}\left[\frac{23}{6},\frac{3}{2},2,\frac{29}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$\left(a^2+b^2\right)\left(\frac{34\,b^2\,\text{AppellF1}\left[\frac{23}{6},\frac{3}{2},2,\frac{29}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{23\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{51}{23}\,\text{AppellF1}\left[\frac{23}{6},\frac{5}{2},1,\frac{29}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(11\left(-1+\text{Sec}[e+f x]^2\right)\Bigg(17\left(a^2+b^2\right)\text{AppellF1}\left[\frac{11}{6},\frac{1}{2},1,\frac{17}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{17}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{17}{6},\frac{3}{2},1,\frac{23}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Bigg)\,\text{Sec}[e+f x]^2\Bigg)^2$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\left(a\sqrt{1-\text{Cos}[e+f x]^2}\;\text{Sec}[e+f x]^{5/3}+b\,\text{Sec}[e+f x]^{2/3}\left(-1+\text{Sec}[e+f x]^2\right)\right)\Bigg)\Bigg)$$

- **Problem 637: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(d\,\text{Sec}[e+f x])^{1/3}}{(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 6, 687 leaves, 18 steps):

$$\frac{5\,a\,b^{2/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\,\left(a^2+b^2\right)^{1/6}}\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{2\,\sqrt{3}\,\left(a^2+b^2\right)^{11/6}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}-$$

$$\frac{5\,a\,b^{2/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\,\left(a^2+b^2\right)^{1/6}}\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{2\,\sqrt{3}\,\left(a^2+b^2\right)^{11/6}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}-\frac{5\,a\,b^{2/3}\,\text{ArcTanh}\left[\frac{b^{1/3}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{1/6}}\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{3\,\left(a^2+b^2\right)^{11/6}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}+$$

$$\frac{5\,a\,b^{2/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{12\,\left(a^2+b^2\right)^{11/6}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}-$$

$$\frac{5\,a\,b^{2/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}+b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\,\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{12\,\left(a^2+b^2\right)^{11/6}\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},2,\frac{5}{6},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}\,\text{Tan}[e+f\,x]}{a^2\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}+$$

$$\frac{b^2\,\text{AppellF1}\left[\frac{3}{2},2,\frac{5}{6},\frac{5}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}\,\text{Tan}[e+f\,x]^3}{3\,a^4\,f\,\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}-\frac{a\,b\,\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}}{\left(a^2+b^2\right)\,f\,\left(a^2-b^2\,\text{Tan}[e+f\,x]^2\right)}$$

Result (type 6, 6547 leaves) :

$$\left(\left(d\,\text{Sec}[e+f\,x]\right)^{1/3}\,\left(\frac{1}{12\,(a-i\,b)\,(a+i\,b)\,\left(a^2+b^2\right)^{5/6}}\right.\right.$$

$$5\,(-1)^{5/6}\,a\,b^{2/3}\,\left(-2\,\text{ArcTan}\left[\sqrt{3}-\frac{2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]+2\,\text{ArcTan}\left[\sqrt{3}+\frac{2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]+\right.$$

$$4\,\text{ArcTan}\left[\frac{(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f\,x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right]-\sqrt{3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\,\sqrt{3}\,b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\text{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}\right]+$$

$$\left.\sqrt{3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\,\sqrt{3}\,b^{1/3}\,\left(a^2+b^2\right)^{1/6}\,\text{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f\,x]^{2/3}\right]\right)+$$

$$3\,\left(-\left(7\,\left(3\,a^2-2\,b^2\right)\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\,\sqrt{1-\text{Cos}[e+f\,x]^2}\,\,\text{Sec}[e+f\,x]^{4/3}\right)\right/$$

$$\left(3\,\left(-1+\text{Sec}[e+f\,x]^2\right)\,\left(7\,\left(a^2+b^2\right)\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\,\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\right.\right.\right.\right.$$

$$\text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\Big) + \frac{1}{21} b \text{Sec}[e+f x]^{1/3} \left(\frac{-7 a+7 b \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]}{\left(a^2+b^2\right) \left(a^2+b^2-b^2 \text{Sec}[e+f x]^2\right)} - \right.$$

$$\Big(26 b \text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]^3\Big) \Big/ \Big(\left(-1+\text{Sec}[e+f x]^2\right) \Big(13 \left(a^2+b^2\right)$$

$$\text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] + 3 \Big(2 b^2 \text{AppellF1}\Big[\frac{13}{6}, \frac{1}{2}, 2, \frac{19}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] +$$

$$\left(a^2+b^2\right) \text{AppellF1}\Big[\frac{13}{6}, \frac{3}{2}, 1, \frac{19}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big) \text{Sec}[e+f x]^2\Big) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\Big)\Big)\Big)\Big)\Big) \Big/$$

$$\Big(f \left(a+b \text{Tan}[e+f x]\right)^2 \Big(\frac{1}{12 (a-\text{i} b) (a+\text{i} b) \left(a^2+b^2\right)^{5/6}} 5 (-1)^{5/6} a b^{2/3} \Big(\frac{4 (-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{4/3} \text{Sin}[e+f x]}{3 \left(a^2+b^2\right)^{1/6} \left(1+\left(\sqrt{3}-\frac{2 (-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right)^2\right)} +$$

$$\frac{4 (-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{4/3} \text{Sin}[e+f x]}{3 \left(a^2+b^2\right)^{1/6} \left(1+\left(\sqrt{3}+\frac{2 (-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right)^2\right)} + \frac{4 (-1)^{1/6} b^{1/3} \text{Sec}[e+f x]^{4/3} \text{Sin}[e+f x]}{3 \left(a^2+b^2\right)^{1/6} \left(1+\frac{(-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}}{\left(a^2+b^2\right)^{1/3}}\right)} -$$

$$\frac{\sqrt{3} \left(-\frac{(-1)^{1/6} b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{4/3} \text{Sin}[e+f x]}{\sqrt{3}} + \frac{2}{3} (-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{5/3} \text{Sin}[e+f x]\right)}{\left(a^2+b^2\right)^{1/3} - (-1)^{1/6} \sqrt{3}\, b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{1/3} + (-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}} +$$

$$\frac{\sqrt{3} \left(\frac{(-1)^{1/6} b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{4/3} \text{Sin}[e+f x]}{\sqrt{3}} + \frac{2}{3} (-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{5/3} \text{Sin}[e+f x]\right)}{\left(a^2+b^2\right)^{1/3} + (-1)^{1/6} \sqrt{3}\, b^{1/3} \left(a^2+b^2\right)^{1/6} \text{Sec}[e+f x]^{1/3} + (-1)^{1/3} b^{2/3} \text{Sec}[e+f x]^{2/3}}\Big) +$$

$$3 \Big(\Big(14 b^2 \left(3 a^2-2 b^2\right) \text{AppellF1}\Big[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] \sqrt{1-\text{Cos}[e+f x]^2}\, \text{Sec}[e+f x]^{13/3} \text{Sin}[e+f x]\Big) \Big/$$

$$\Big(3 \left(-1+\text{Sec}[e+f x]^2\right) \Big(7 \left(a^2+b^2\right) \text{AppellF1}\Big[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] +$$

$$3 \Big(2 b^2 \text{AppellF1}\Big[\frac{7}{6}, \frac{1}{2}, 2, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\Big] +$$

$$\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)^2\right) +$$

$$\left(14 \left(3 a^2-2 b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^{13/3} \text{Sin}[e+f x]\right) \Big/$$

$$\left(3 \left(-1+\text{Sec}[e+f x]^2\right)^2 \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] +\right.\right.$$

$$3 \left(2 b^2 \text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 2, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] +\right.$$

$$\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right) -$$

$$\left(7 \left(3 a^2-2 b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x]^{1/3} \text{Sin}[e+f x]\right) \Big/$$

$$\left(3 \sqrt{1-\text{Cos}[e+f x]^2} \left(-1+\text{Sec}[e+f x]^2\right) \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] +\right.\right.$$

$$3 \left(2 b^2 \text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 2, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] +\right.$$

$$\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right) -$$

$$\left(28 \left(3 a^2-2 b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^{7/3} \text{Sin}[e+f x]\right) \Big/$$

$$\left(9 \left(-1+\text{Sec}[e+f x]^2\right) \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6}, \frac{1}{2}, 1, \frac{7}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] + 3 \left(2 b^2 \text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 2, \frac{13}{6},\right.\right.\right.\right.$$

$$\text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] + \left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{3}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right)$$

$$\left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right) + \frac{1}{63} b \text{Sec}[e+f x]^{4/3} \left(\frac{-7 a+7 b \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]}{\left(a^2+b^2\right) \left(a^2+b^2-b^2 \text{Sec}[e+f x]^2\right)} -\right.$$

$$\left(26 b \text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3\right) \Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right) \left(13 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6}, \frac{1}{2}, 1, \frac{13}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] +\right.\right.$$

$$3 \left(2 b^2 \text{AppellF1}\left[\frac{13}{6}, \frac{1}{2}, 2, \frac{19}{6}, \text{Sec}[e+f x]^2, \frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] + \left(a^2+b^2\right) \text{AppellF1}\left[\frac{13}{6}, \frac{3}{2}, 1, \frac{19}{6},\right.\right.$$

$$\text{Sec}[e+f x]^2,\ \frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]\Big)\ \text{Sec}[e+f x]^2\Big)\ \left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\Big)\Big)\ \text{Sin}[e+f x]\ -$$

$$\Big(7\left(3 a^2-2 b^2\right)\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{4/3}\left(\frac{2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{7\left(a^2+b^2\right)}+\right.$$

$$\left.\left.\frac{1}{7}\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\Big/$$

$$\Big(3\left(-1+\text{Sec}[e+f x]^2\right)\Big(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\Big(2 b^2\,\text{AppellF1}\Big[\frac{7}{6},\frac{1}{2},2,$$

$$\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\Big]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Big)\ \text{Sec}[e+f x]^2\Big)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\Big)+\Big(7\left(3 a^2-2 b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]$$

$$\sqrt{1-\text{Cos}[e+f x]^2}\ \text{Sec}[e+f x]^{4/3}\Big(6\Big(2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+$$

$$\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\Big)\ \text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$7\left(a^2+b^2\right)\left(\frac{2 b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{7\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{1}{7}\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$3\,\text{Sec}[e+f x]^2\left(2 b^2\left(\frac{28 b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},3,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{14 b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.$$

$$\frac{21}{13}\text{AppellF1}\left[\frac{13}{6},\frac{5}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)^2$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)+\frac{1}{21}\,b\,\text{Sec}[e+fx]^{1/3}\left(\frac{2\,b^2\,\text{Sec}[e+fx]^2\left(-7\,a+7\,b\,\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]\right)\text{Tan}[e+fx]}{\left(a^2+b^2\right)\left(a^2+b^2-b^2\,\text{Sec}[e+fx]^2\right)^2}+\right.$$

$$\left(52\,b^3\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^5\,\text{Tan}[e+fx]\right)\Bigg/$$

$$\Bigg(\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)^2\Bigg)+$$

$$\left(52\,b\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^5\,\text{Tan}[e+fx]\right)\Bigg/$$

$$\Bigg(\left(-1+\text{Sec}[e+fx]^2\right)^2\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.$$

$$\left.\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)-\left(26\,b\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]\,\text{Tan}[e+fx]\right)\Bigg/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+fx]^2}\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$3\Bigg(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)-$$

$$\left(78\,b\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3\,\text{Tan}[e+f x]\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.\right.\right.$$

$$\left.\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\Big)$$

$$\left.\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+\frac{\frac{7\,b\,\text{Sin}[e+f x]}{\sqrt{1-\text{Cos}[e+f x]^2}}+7\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]\,\text{Tan}[e+f x]}{\left(a^2+b^2\right)\left(a^2+b^2-b^2\,\text{Sec}[e+f x]^2\right)}-$$

$$\left(26\,b\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.\right.$$

$$\left.\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\Big/\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(13\left(a^2+b^2\right)\right.\right.$$

$$\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left.\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\left(26\,b\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f x]^2}\,\text{Sec}[e+f x]^3\left(6\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\right.\right.\right.\right.$$

$$\left.\left.\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2$$

$$\text{Tan}[e+f x]+13\left(a^2+b^2\right)\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{13\left(a^2+b^2\right)}+\right.$$

$$\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$3\,\text{Sec}[e+f x]^2\left(2\,b^2\left(\frac{1}{19\left(a^2+b^2\right)}52\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{1}{2},3,\frac{25}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\right.\right.$$

$$\left.\text{Tan}[e+f x]+\frac{13}{19}\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$\left(a^2+b^2\right)\left(\frac{1}{19\left(a^2+b^2\right)}26\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+\right.$$

$$\left.\left.\left.\left.\frac{39}{19}\text{AppellF1}\left[\frac{19}{6},\frac{5}{2},1,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f\,x]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\right.\right.$$

$$3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\right.\right.$$

$$\left.\left.\left.\left.\left.\left.\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)^2\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)\right)\right)\right)$$

- **Problem 638: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(d\,\text{Sec}[e+f\,x])^{1/3}\,(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 6, 715 leaves, 19 steps):

$$\frac{7\,a\,b}{\left(a^2+b^2\right)^2 f\,(d\,\text{Sec}[e+f\,x])^{1/3}}-\frac{7\,a\,b^{4/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{2\sqrt{3}\left(a^2+b^2\right)^{13/6}f\,(d\,\text{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{7\,a\,b^{4/3}\,\text{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\sqrt{3}\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{2\sqrt{3}\left(a^2+b^2\right)^{13/6}f\,(d\,\text{Sec}[e+f\,x])^{1/3}}-\frac{7\,a\,b^{4/3}\,\text{ArcTanh}\left[\frac{b^{1/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{\left(a^2+b^2\right)^{1/6}}\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{3\left(a^2+b^2\right)^{13/6}f\,(d\,\text{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{7\,a\,b^{4/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}-b^{1/3}\left(a^2+b^2\right)^{1/6}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{12\left(a^2+b^2\right)^{13/6}f\,(d\,\text{Sec}[e+f\,x])^{1/3}}-$$

$$\frac{7\,a\,b^{4/3}\,\text{Log}\left[\left(a^2+b^2\right)^{1/3}+b^{1/3}\left(a^2+b^2\right)^{1/6}\left(\text{Sec}[e+f\,x]^2\right)^{1/6}+b^{2/3}\left(\text{Sec}[e+f\,x]^2\right)^{1/3}\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}}{12\left(a^2+b^2\right)^{13/6}f\,(d\,\text{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},2,\frac{7}{6},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}\text{Tan}[e+f\,x]}{a^2 f\,(d\,\text{Sec}[e+f\,x])^{1/3}}+$$

$$\frac{b^2\,\text{AppellF1}\left[\frac{3}{2},2,\frac{7}{6},\frac{5}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\left(\text{Sec}[e+f\,x]^2\right)^{1/6}\text{Tan}[e+f\,x]^3}{3\,a^4 f\,(d\,\text{Sec}[e+f\,x])^{1/3}}-\frac{a\,b}{\left(a^2+b^2\right)f\,(d\,\text{Sec}[e+f\,x])^{1/3}\left(a^2-b^2\,\text{Tan}[e+f\,x]^2\right)}$$

Result (type 6, 56 289 leaves) : Display of huge result suppressed!

- **Problem 639: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 6, 717 leaves, 19 steps) :

$$\frac{11\,a\,b}{5\,(a^2+b^2)^2\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}+\frac{11\,a\,b^{8/3}\,\mathrm{ArcTan}\left[\frac{1}{\sqrt{3}}-\frac{2\,b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{\sqrt{3}\,(a^2+b^2)^{1/6}}\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}{2\,\sqrt{3}\,(a^2+b^2)^{17/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}-$$

$$\frac{11\,a\,b^{8/3}\,\mathrm{ArcTan}\left[\frac{1}{\sqrt{3}}+\frac{2\,b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{\sqrt{3}\,(a^2+b^2)^{1/6}}\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}{2\,\sqrt{3}\,(a^2+b^2)^{17/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}-\frac{11\,a\,b^{8/3}\,\mathrm{ArcTanh}\left[\frac{b^{1/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}}{(a^2+b^2)^{1/6}}\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}{3\,(a^2+b^2)^{17/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}+$$

$$\frac{11\,a\,b^{8/3}\,\mathrm{Log}\left[(a^2+b^2)^{1/3}-b^{1/3}\,(a^2+b^2)^{1/6}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}+b^{2/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/3}\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}{12\,(a^2+b^2)^{17/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}-$$

$$\frac{11\,a\,b^{8/3}\,\mathrm{Log}\left[(a^2+b^2)^{1/3}+b^{1/3}\,(a^2+b^2)^{1/6}\,(\mathrm{Sec}[e+f\,x]^2)^{1/6}+b^{2/3}\,(\mathrm{Sec}[e+f\,x]^2)^{1/3}\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}}{12\,(a^2+b^2)^{17/6}\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}+$$

$$\frac{\mathrm{AppellF1}\left[\frac{1}{2},\,2,\,\frac{11}{6},\,\frac{3}{2},\,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}\,\mathrm{Tan}[e+f\,x]}{a^2\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}+$$

$$\frac{b^2\,\mathrm{AppellF1}\left[\frac{3}{2},\,2,\,\frac{11}{6},\,\frac{5}{2},\,\frac{b^2\,\mathrm{Tan}[e+f\,x]^2}{a^2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(\mathrm{Sec}[e+f\,x]^2)^{5/6}\,\mathrm{Tan}[e+f\,x]^3}{3\,a^4\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}}-\frac{a\,b}{(a^2+b^2)\,f\,(d\,\mathrm{Sec}[e+f\,x])^{5/3}\,(a^2-b^2\,\mathrm{Tan}[e+f\,x]^2)}$$

Result (type 6, 7441 leaves) :

$$\left(\frac{1}{12\,(a-i\,b)^2\,(a+i\,b)^2\,(a^2+b^2)^{5/6}}\right.$$

$$11\,(-1)^{5/6}\,a\,b^{8/3}\,\left(-2\,\mathrm{ArcTan}\left[\sqrt{3}-\frac{2\,(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{(a^2+b^2)^{1/6}}\right]+2\,\mathrm{ArcTan}\left[\sqrt{3}+\frac{2\,(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{(a^2+b^2)^{1/6}}\right]+\right.$$

$$4\,\mathrm{ArcTan}\left[\frac{(-1)^{1/6}\,b^{1/3}\,\mathrm{Sec}[e+f\,x]^{1/3}}{(a^2+b^2)^{1/6}}\right]-\sqrt{3}\,\mathrm{Log}\left[(a^2+b^2)^{1/3}-(-1)^{1/6}\,\sqrt{3}\,b^{1/3}\,(a^2+b^2)^{1/6}\,\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right]+$$

$$\left.\sqrt{3}\,\mathrm{Log}\left[(a^2+b^2)^{1/3}+(-1)^{1/6}\,\sqrt{3}\,b^{1/3}\,(a^2+b^2)^{1/6}\,\mathrm{Sec}[e+f\,x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\mathrm{Sec}[e+f\,x]^{2/3}\right]\right)+\frac{1}{35\,(a^2+b^2)^2\,\mathrm{Sec}[e+f\,x]^{5/3}}$$

$$\left(-\left(49\left(6a^6+51a^4b^2+29a^2b^4-16b^6\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3\right)\Big/\right.$$
$$\left(\left(-1+\text{Sec}[e+fx]^2\right)\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\right.\right.$$
$$3\left(2b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\right.$$
$$\left.\left.\left.\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)+$$
$$\frac{1}{a^2-b^2\left(-1+\text{Sec}[e+fx]^2\right)}\left(42a^3b+42ab^3+21a^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]-21b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]-\right.$$
$$77ab^3\,\text{Sec}[e+fx]^2-21a^2b^2\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3+56b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3+$$
$$\left(26b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^5\right)\Big/$$
$$\left(\left(-1+\text{Sec}[e+fx]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\left(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.\right.\right.$$
$$\left.\left.\left.\left.\left.\left.\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\right)\right)\right)\right)\Big/$$

$$\left(f\left(d\,\text{Sec}[e+fx]\right)^{5/3}\left(a+b\,\text{Tan}[e+fx]\right)^2\left(-\frac{1}{21\left(a^2+b^2\right)^2\text{Sec}[e+fx]^{2/3}}\left(-\left(49\left(6a^6+51a^4b^2+29a^2b^4-16b^6\right)\right.\right.\right.\right.$$
$$\left.\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3\right)\Big/\left(\left(-1+\text{Sec}[e+fx]^2\right)\left(7\left(a^2+b^2\right)\right.\right.$$
$$\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\left(2b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\right.$$
$$\left.\left.\left.\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\right)+$$
$$\frac{1}{a^2-b^2\left(-1+\text{Sec}[e+fx]^2\right)}\left(42a^3b+42ab^3+21a^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]-21b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]-\right.$$
$$77ab^3\,\text{Sec}[e+fx]^2-21a^2b^2\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3+56b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3+$$
$$\left(26b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^5\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2 b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\right)\right)\text{Sin}[e+f x]+$$

$$\frac{1}{12\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\left(a^2+b^2\right)^{5/6}}\,11\,(-1)^{5/6}\,a\,b^{8/3}\left(\frac{4\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{4/3}\,\text{Sin}[e+f x]}{3\left(a^2+b^2\right)^{1/6}\left(1+\left(\sqrt{3}-\frac{2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right)^2\right)}+\right.$$

$$\frac{4\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{4/3}\,\text{Sin}[e+f x]}{3\left(a^2+b^2\right)^{1/6}\left(1+\left(\sqrt{3}+\frac{2\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{1/3}}{\left(a^2+b^2\right)^{1/6}}\right)^2\right)}+\frac{4\,(-1)^{1/6}\,b^{1/3}\,\text{Sec}[e+f x]^{4/3}\,\text{Sin}[e+f x]}{3\left(a^2+b^2\right)^{1/6}\left(1+\frac{(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{2/3}}{\left(a^2+b^2\right)^{1/3}}\right)}-$$

$$\frac{\sqrt{3}\left(-\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\,\text{Sec}[e+f x]^{4/3}\,\text{Sin}[e+f x]}{\sqrt{3}}+\frac{2}{3}\,(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]\right)}{\left(a^2+b^2\right)^{1/3}-(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{2/3}}+$$

$$\left.\frac{\sqrt{3}\left(\frac{(-1)^{1/6}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\,\text{Sec}[e+f x]^{4/3}\,\text{Sin}[e+f x]}{\sqrt{3}}+\frac{2}{3}\,(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{5/3}\,\text{Sin}[e+f x]\right)}{\left(a^2+b^2\right)^{1/3}+(-1)^{1/6}\sqrt{3}\,b^{1/3}\left(a^2+b^2\right)^{1/6}\text{Sec}[e+f x]^{1/3}+(-1)^{1/3}\,b^{2/3}\,\text{Sec}[e+f x]^{2/3}}\right)+$$

$$\frac{1}{35\left(a^2+b^2\right)^2\text{Sec}[e+f x]^{5/3}}\left(\left(98\,b^2\left(6a^6+51a^4b^2+29a^2b^4-16b^6\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right.\right.$$

$$\left.\sqrt{1-\text{Cos}[e+f x]^2}\;\text{Sec}[e+f x]^5\,\text{Tan}[e+f x]\right)\Big/\left(\left(-1+\text{Sec}[e+f x]^2\right)\left(7\left(a^2+b^2\right)\right.\right.$$

$$\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+3\left(2b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left.\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f x]^2\right)\right)^2\right)+$$

$$\left(98\left(6a^6+51a^4b^2+29a^2b^4-16b^6\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left.\text{Sec}[e+f x]^5\,\text{Tan}[e+f x]\right)\Big/\left(\left(-1+\text{Sec}[e+f x]^2\right)^2\left(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.\right.$$

$$3\left(2 b^2 \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(49 \left(6 a^6+51 a^4 b^2+29 a^2 b^4-16 b^6\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \text{Sec}[e+f x] \text{Tan}[e+f x]\right)\Big/$$

$$\left(\sqrt{1-\text{Cos}[e+f x]^2} \left(-1+\text{Sec}[e+f x]^2\right) \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.\right.$$

$$3\left(2 b^2 \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)-$$

$$\left(147 \left(6 a^6+51 a^4 b^2+29 a^2 b^4-16 b^6\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\left.\text{Sec}[e+f x]^3 \text{Tan}[e+f x]\right)\Big/\left(\left(-1+\text{Sec}[e+f x]^2\right) \left(7 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.\right.$$

$$3\left(2 b^2 \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right) \left(-a^2+b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)\right)+$$

$$\frac{1}{\left(a^2-b^2 \left(-1+\text{Sec}[e+f x]^2\right)\right)^2} 2 b^2 \text{Sec}[e+f x]^2 \left(42 a^3 b+42 a b^3+21 a^4 \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]-21 b^4 \sqrt{1-\text{Cos}[e+f x]^2}\right.$$

$$\text{Sec}[e+f x]-77 a b^3 \text{Sec}[e+f x]^2-21 a^2 b^2 \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+56 b^4 \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3+$$

$$\left(26 b^2 \left(-3 a^4+5 a^2 b^2+8 b^4\right) \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right] \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^5\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f x]^2\right) \left(13 \left(a^2+b^2\right) \text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+3 \left(2 b^2 \text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right) \text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f x]^2,\frac{b^2 \text{Sec}[e+f x]^2}{a^2+b^2}\right]\right) \text{Sec}[e+f x]^2\right)\right)\right)$$

$$\text{Tan}[e+f x]-\left(49 \left(6 a^6+51 a^4 b^2+29 a^2 b^4-16 b^6\right) \sqrt{1-\text{Cos}[e+f x]^2} \text{Sec}[e+f x]^3\right.$$

$$\left(\frac{2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{7\,(a^2+b^2)}+\right.$$

$$\left.\left.\frac{1}{7}\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+f\,x]^2\right)\left(7\,(a^2+b^2)\,\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\right.\right.$$

$$3\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.(a^2+b^2)\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)\left(-a^2+b^2\left(-1+\text{Sec}[e+f\,x]^2\right)\right)\right)+$$

$$\left(49\left(6\,a^6+51\,a^4\,b^2+29\,a^2\,b^4-16\,b^6\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+f\,x]^2}\right.$$

$$\text{Sec}[e+f\,x]^3\left(6\left(2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\right.\right.$$

$$\left.(a^2+b^2)\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$7\,(a^2+b^2)\left(\frac{2\,b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{7\,(a^2+b^2)}+\right.$$

$$\left.\frac{1}{7}\,\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$3\,\text{Sec}[e+f\,x]^2\left(2\,b^2\left(\frac{28\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},3,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{13\,(a^2+b^2)}+\right.\right.$$

$$\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$(a^2+b^2)\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{13\,(a^2+b^2)}+\right.$$

$$\frac{21}{13}\text{AppellF1}\left[\frac{13}{6},\frac{5}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(7\left(a^2+b^2\right)\text{AppellF1}\left[\frac{1}{6},\frac{1}{2},1,\frac{7}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2b^2\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},2,\right.$$

$$\left.\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{3}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)^2$$

$$\left(-a^2+b^2\left(-1+\text{Sec}[e+fx]^2\right)\right)\Bigg)+\frac{1}{a^2-b^2\left(-1+\text{Sec}[e+fx]^2\right)}\Bigg(\frac{21a^4\,\text{Sin}[e+fx]}{\sqrt{1-\text{Cos}[e+fx]^2}}-\frac{21b^4\,\text{Sin}[e+fx]}{\sqrt{1-\text{Cos}[e+fx]^2}}-$$

$$\frac{21a^2b^2\,\text{Sec}[e+fx]\,\text{Tan}[e+fx]}{\sqrt{1-\text{Cos}[e+fx]^2}}+\frac{56b^4\,\text{Sec}[e+fx]\,\text{Tan}[e+fx]}{\sqrt{1-\text{Cos}[e+fx]^2}}+21a^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]\,\text{Tan}[e+fx]-$$

$$21b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]\,\text{Tan}[e+fx]-154ab^3\,\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]-$$

$$63a^2b^2\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3\,\text{Tan}[e+fx]+168b^4\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^3\,\text{Tan}[e+fx]-$$

$$\Bigg(52b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\,\text{Sec}[e+fx]^7\,\text{Tan}[e+fx]\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Sec}[e+fx]^2\right)^2\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\Bigg(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.$$

$$\left.\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)\Bigg)+$$

$$\Bigg(26b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^3\,\text{Tan}[e+fx]\Bigg)\Bigg/$$

$$\Bigg(\sqrt{1-\text{Cos}[e+fx]^2}\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$3\Bigg(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\Bigg)\text{Sec}[e+fx]^2\Bigg)\Bigg)+$$

$$\Bigg(130b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}$$

$$\text{Sec}[e+fx]^5\,\text{Tan}[e+fx]\Bigg)\Bigg/\Bigg(\left(-1+\text{Sec}[e+fx]^2\right)\Bigg(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+$$

$$3\left(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\right.$$

$$\left.\left.\left.(a^2+b^2)\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\right)\right)+\left(26\,b^2\left(-3a^4+5a^2b^2+8b^4\right)\right.$$

$$\sqrt{1-\text{Cos}[e+fx]^2}\;\text{Sec}[e+fx]^5\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]}{13\,(a^2+b^2)}+\right.$$

$$\left.\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\right)\right)\Big/$$

$$\left(\left(-1+\text{Sec}[e+fx]^2\right)\left(13\,(a^2+b^2)\,\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+3\left(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\right.\right.\right.\right.$$

$$\left.\left.\left.\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+(a^2+b^2)\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\right)\right)-$$

$$\left(26\,b^2\left(-3a^4+5a^2b^2+8b^4\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\sqrt{1-\text{Cos}[e+fx]^2}\right.$$

$$\text{Sec}[e+fx]^5\left(6\left(2b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]+\right.\right.$$

$$\left.(a^2+b^2)\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\right)\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]+$$

$$13\,(a^2+b^2)\left(\frac{14\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]}{13\,(a^2+b^2)}+\right.$$

$$\left.\frac{7}{13}\,\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\right)+$$

$$3\,\text{Sec}[e+fx]^2\left(2b^2\left(\frac{1}{19\,(a^2+b^2)}52\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{1}{2},3,\frac{25}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\right.\right.$$

$$\left.\text{Tan}[e+fx]+\frac{13}{19}\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]\right)+$$

$$(a^2+b^2)\left(\frac{1}{19\,(a^2+b^2)}26\,b^2\,\text{AppellF1}\left[\frac{19}{6},\frac{3}{2},2,\frac{25}{6},\text{Sec}[e+fx]^2,\frac{b^2\,\text{Sec}[e+fx]^2}{a^2+b^2}\right]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]+\right.$$

$$\left.\left.\left.\left.\frac{39}{19}\,\text{AppellF1}\left[\frac{19}{6},\frac{5}{2},1,\frac{25}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/\left(\left(-1+\text{Sec}[e+f\,x]^2\right)\right.$$

$$\left(13\left(a^2+b^2\right)\text{AppellF1}\left[\frac{7}{6},\frac{1}{2},1,\frac{13}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+3\left(2\,b^2\,\text{AppellF1}\left[\frac{13}{6},\frac{1}{2},2,\frac{19}{6},\text{Sec}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.\left.\left.\left.\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]+\left(a^2+b^2\right)\text{AppellF1}\left[\frac{13}{6},\frac{3}{2},1,\frac{19}{6},\text{Sec}[e+f\,x]^2,\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\right)\text{Sec}[e+f\,x]^2\right)^2\right)\right)\right)\right)\right)$$

- **Problem 641: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Sec}[e+f\,x])^m\,(a+b\,\text{Tan}[e+f\,x])^2\,dx$$

Optimal (type 5, 147 leaves, 4 steps):

$$\frac{a\,b\,(2+m)\,(d\,\text{Sec}[e+f\,x])^m}{f\,m\,(1+m)}+$$
$$\frac{d\left(b^2-a^2\,(1+m)\right)\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1-m}{2},\frac{3-m}{2},\text{Cos}[e+f\,x]^2\right](d\,\text{Sec}[e+f\,x])^{-1+m}\,\text{Sin}[e+f\,x]}{f\,(1-m)\,(1+m)\,\sqrt{\text{Sin}[e+f\,x]^2}}+\frac{b\,(d\,\text{Sec}[e+f\,x])^m\,(a+b\,\text{Tan}[e+f\,x])}{f\,(1+m)}$$

Result (type 6, 14694 leaves):

$$\left(\text{Sec}[e+f\,x]^{-2-m}\,(d\,\text{Sec}[e+f\,x])^m\left(a^2\,\text{Sec}[e+f\,x]^m+2\,a\,b\,\text{Sec}[e+f\,x]^{1+m}\,\text{Sin}[e+f\,x]+b^2\,\text{Sec}[e+f\,x]^{2+m}\,\text{Sin}[e+f\,x]^2\right)\right.$$

$$\left(\left(\left(3\,a^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)-$$

$$\left(3\,b^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-2+m}\right.$$

$$\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg/\left(\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\left(3\operatorname{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\left((-1+m)\operatorname{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\operatorname{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\left(b^2\operatorname{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\right.$$

$$\left.\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Bigg/\left(\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\left(\operatorname{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\operatorname{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(1+m)\operatorname{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(2b^2\operatorname{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{m}\right.$$

$$\left.\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\right)\Bigg/\left(\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\left(\operatorname{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\operatorname{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.\left.(2+m)\operatorname{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)+$$

$$\left(2ab\operatorname{AppellF1}\left[1,m,1-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\right.$$

$$\left.\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\right)\Bigg/\left(\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\left(2\operatorname{AppellF1}\left[1,m,1-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left((-1+m)\operatorname{AppellF1}\left[2,m,2-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Big)+$$

$$\Bigg(2\,a\,b\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Big(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Big(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Bigg)\,(a+b\,\text{Tan}[e+f x])^2\Bigg)\Bigg/$$

$$\Bigg(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\Bigg(\Bigg(3\,a^2\,(-1+m)\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-2+m}\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Big(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Big((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)\Bigg)-$$

$$\Bigg(3\,b^2\,(-1+m)\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-2+m}\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Big(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Big((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(6\,a^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(6\,b^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,a^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\left(3\,b^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-2+m}\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,a^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\right.\right.$$

$$\left.\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)-$$

$$\left(3\,b^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\right.\right.$$

$$\left.\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$

$$\left(3\,a^2\,(-2+m)\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(3\,b^2\,(-2+m)\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(b^2\,m\,\text{AppellF1}\left[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\left(\text{AppellF1}\left[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(1+m)\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\Bigg(2\,b^2\,\text{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^3\,\Big(\text{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$\frac{2}{3}\Big(m\,\text{AppellF1}\Big[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$(1+m)\,\text{AppellF1}\Big[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Bigg)-$$

$$\Bigg(b^2\,\text{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-1+m}$$

$$\left(1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^m\Bigg)\Bigg/\Bigg(2\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2\Big(\text{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$\frac{2}{3}\Big(m\,\text{AppellF1}\Big[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$(1+m)\,\text{AppellF1}\Big[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Bigg)-$$

$$\Bigg(b^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\,\Big(\frac{1}{3}m\,\text{AppellF1}\Big[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+$$

$$\frac{1}{3}(1+m)\,\text{AppellF1}\Big[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^m\Bigg)\Bigg/\Bigg(\Big(-1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2$$

$$\Big(\text{AppellF1}\Big[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+\frac{2}{3}\Big(m\,\text{AppellF1}\Big[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+(1+m)\,\text{AppellF1}\Big[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Bigg)-$$

$$\left(b^2\,(-1+m)\,\text{AppellF1}\left[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\,\left(\text{AppellF1}\left[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(1+m)\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(2\,b^2\,m\,\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\,\left(\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left(4\,b^2\,\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^3\,\left(\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(b^2\,\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\,\left(\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(2\,b^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.\right.$$

$$\left.\frac{1}{3}\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/\,\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\right.$$

$$\left(\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.\right.$$

$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(2\,b^2\,m\,\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right.$$

$$\left.\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{1+m}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\,\left(\text{AppellF1}\left[\frac{1}{2},\,2+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.(2+m)\,\text{AppellF1}\left[\frac{3}{2},\,3+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)+$$

$$\left(2\,a\,b\,(-1+m)\,\text{AppellF1}\left[1,\,m,\,1-m,\,2,\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right.$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-2+m}\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(4\,a\,b\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,b\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{2} m \, \text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg) \Big/ \left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\Bigg(2 \, \text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + \Bigg((-1+m) \, \text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + m \, \text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg(2 a b (-2+m) \, \text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg) \Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2 \Bigg(2 \, \text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\Bigg((-1+m) \, \text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$m \, \text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg) +$$

$$\Bigg(2 a b m \, \text{AppellF1}\left[1, 1+m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m} \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg) \Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2 \Bigg(2 \, \text{AppellF1}\left[1, 1+m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\Bigg(m \, \text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$(1+m) \, \text{AppellF1}\left[2, 2+m, -m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg) -$$

$$\Bigg(4 a b \, \text{AppellF1}\left[1, 1+m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\Bigg(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,b\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{2}(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Big/\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2$$

$$\Bigg(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Bigg(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,a\,b\,(-1+m)\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3$$

$$\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2 \Bigg(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(3\,a^2\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg(2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$3\left(-\frac{1}{3}(1-m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\Bigg((-1+m)\left(-\frac{3}{5}(2-m)\,\text{AppellF1}\left[\frac{5}{2},m,3-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2+$$

$$\left(3\,b^2\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-2+m}\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^{-1+m}\,\left(2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$\left.m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+$$

$$3\,\left(-\frac{1}{3}\,(1-m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.$$

$$\left.\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)+2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2$$

$$\left((-1+m)\,\left(-\frac{3}{5}\,(2-m)\,\text{AppellF1}\left[\frac{5}{2},\,m,\,3-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.\right.$$

$$\left.\frac{3}{5}\,m\,\text{AppellF1}\left[\frac{5}{2},\,1+m,\,2-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)+$$

$$m\,\left(-\frac{3}{5}\,(1-m)\,\text{AppellF1}\left[\frac{5}{2},\,1+m,\,2-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.$$

$$\left.\left.\left.\left.\frac{3}{5}\,(1+m)\,\text{AppellF1}\left[\frac{5}{2},\,2+m,\,1-m,\,\frac{7}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\right)\right)\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\,\left(3\,\text{AppellF1}\left[\frac{1}{2},\,m,\,1-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.\right.$$

$$2\,\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},\,m,\,2-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2\right)+$$

$$\left(b^2\,\text{AppellF1}\left[\frac{1}{2},\,1+m,\,-m,\,\frac{3}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^{-1+m}\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^m\,\left(\frac{1}{3}\,m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\right.$$

$$\frac{1}{3}\,(1+m)\,\text{AppellF1}\left[\frac{3}{2},\,2+m,\,-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+$$

$$\frac{2}{3}\,\left(m\,\text{AppellF1}\left[\frac{3}{2},\,1+m,\,1-m,\,\frac{5}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+(1+m)\right.$$

$$\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$(1+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$

$$\left.\left.\left.\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\left(\text{AppellF1}\left[\frac{1}{2},1+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(1+m)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2},2+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)-$$

$$\left(2\,b^2\,\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}\right)^m\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^m\left(\frac{1}{3}m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$

$$\frac{1}{3}(2+m)\,\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$\frac{2}{3}\left(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(2+m)\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{2}{3}\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left(m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},2+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{3}{5}(2+m)\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$(2+m)\left(\frac{3}{5}m\,\text{AppellF1}\left[\frac{5}{2},3+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.$$

$$\frac{3}{5}(3+m)\,\text{AppellF1}\left[\frac{5}{2},4+m,-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Bigg(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg(\text{AppellF1}\left[\frac{1}{2},2+m,-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\frac{2}{3}\Bigg(m\,\text{AppellF1}\left[\frac{3}{2},2+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(2+m)$$

$$\text{AppellF1}\left[\frac{3}{2},3+m,-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)-$$

$$\Bigg(2\,a\,b\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-2+m}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^{-1+m}\Bigg(\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$2\Bigg(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\Bigg((-1+m)\Bigg(-\frac{2}{3}(2-m)\,\text{AppellF1}\left[3,m,3-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$m\Bigg(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\Bigg(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m$$

$$\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)-$$

$$\left(2\,a\,b\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\right.$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^m\left(\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left.(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$2\left(\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{1}{2}(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(m\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$(1+m)\left(\frac{2}{3}m\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\left.\frac{2}{3}(2+m)\,\text{AppellF1}\left[3,3+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\left(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right)$$

- **Problem 642: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Sec}[e+f x])^m\,(a+b\,\text{Tan}[e+f x])\,dx$$

Optimal (type 5, 93 leaves, 3 steps):

$$\frac{b\,(d\,\text{Sec}[e+f x])^m}{f\,m}-\frac{a\,d\,\text{Hypergeometric2F1}\left[\frac{1}{2},\frac{1-m}{2},\frac{3-m}{2},\text{Cos}[e+f x]^2\right](d\,\text{Sec}[e+f x])^{-1+m}\,\text{Sin}[e+f x]}{f\,(1-m)\,\sqrt{\text{Sin}[e+f x]^2}}$$

Result (type 6, 7252 leaves):

$$\Bigg(2\,\text{Sec}[e+f\,x]^{-1-m}\,(d\,\text{Sec}[e+f\,x])^m\,\left(a\,\text{Sec}[e+f\,x]^m+b\,\text{Sec}[e+f\,x]^{1+m}\,\text{Sin}[e+f\,x]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\left(\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m$$

$$\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg)\Big/\,\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\Bigg(\Bigg(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)-\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/$$

$$\Bigg(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\Bigg(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\Bigg)$$

$$(a+b\,\text{Tan}[e+f\,x])\Bigg)\Big/\,\Bigg(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\Bigg(-\frac{1}{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right)^m$$

$$\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg)\Big/\,\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\,\Bigg(\Bigg(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\Bigg)\Big/$$

$$\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(2\,\text{AppellF1}\left[1,m,1-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\right.\right.\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)$$

$$\left.\left.\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-\text{AppellF1}\left[1,1+m,-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\left(2\,\text{AppellF1}\left[1,1+m,-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)+$$

$$\frac{1}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\left(\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right.$$

$$\left(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big)+$$

$$b\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\left(\text{AppellF1}\left[1,m,1-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/\right.$$

$$\left(\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(2\,\text{AppellF1}\left[1,m,1-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-\text{AppellF1}\left[1,1+m,-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\left(2\,\text{AppellF1}\left[1,1+m,-m,2,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)+$$

$$\frac{1}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}2\,m\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{-1+m}\left(\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2}+\right.$$

$$\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\Bigg)$$

$$\Bigg(\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Big/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg(\Bigg(\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(2\,\text{AppellF1}\left[1, m, 1-m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2, m, 2-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-\text{AppellF1}\left[1, 1+m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\Bigg(2\,\text{AppellF1}\left[1, 1+m, -m, 2, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Bigg(m\,\text{AppellF1}\left[2, 1+m, 1-m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2, 2+m, -m, 3, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\,2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^m\Bigg(-\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Big/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2$$

$$\Bigg(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+m\,\text{AppellF1}\left[\frac{3}{2}, 1+m, 1-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Big/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(3\,\text{AppellF1}\left[\frac{1}{2}, m, 1-m, \frac{3}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2}, m, 2-m, \frac{5}{2}, \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\text{m AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(3 a\left(-\frac{1}{3}(1-m)\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{1}{3}\text{m AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Big/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(3\text{ AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg((-1+m)\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\text{m AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{2}\text{b Sec}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(\Bigg(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(2\text{ AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\text{m AppellF1}\Bigg[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big/$$

$$\Bigg(2\text{ AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\Bigg(\text{m AppellF1}\Bigg[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,$$

$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]+(1+m)\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(3\text{ a AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

$$\Bigg(2\Bigg((-1+m)\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\text{m AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+3\Bigg(-\frac{1}{3}(1-m)$$

$$\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3}\text{m AppellF1}\Bigg[\frac{3}{2},$$

$$1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+2\text{ Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\Bigg((-1+m)\left(-\frac{3}{5}(2-m)\text{AppellF1}\left[\frac{5}{2},m,3-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\frac{3}{5}\,m\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)+$$

$$m\left(-\frac{3}{5}(1-m)\,\text{AppellF1}\left[\frac{5}{2},1+m,2-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\frac{3}{5}(1+m)\,\text{AppellF1}\left[\frac{5}{2},2+m,1-m,\frac{7}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(3\,\text{AppellF1}\left[\frac{1}{2},m,1-m,\frac{3}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg((-1+m)\,\text{AppellF1}\left[\frac{3}{2},m,2-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[\frac{3}{2},1+m,1-m,\frac{5}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2\Bigg)+$$

$$b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg(-\Bigg(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg/$$

$$\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(\Bigg(-\frac{1}{2}(1-m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{2}\,m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg/\Bigg(\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$\Bigg((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)-$$

$$\left(\frac{1}{2}m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{2}\right.$$

$$\left.(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)-$$

$$\left(\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right.$$

$$\left(\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left.m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+2\left(-\frac{1}{2}(1-m)\right.$$

$$\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{2}m\,\text{AppellF1}\left[2,\right.$$

$$\left.\left.1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left((-1+m)\left(-\frac{2}{3}(2-m)\,\text{AppellF1}\left[3,m,3-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\right.\right.$$

$$\left.\frac{2}{3}m\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$m\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{2}{3}\right.$$

$$\left.\left.\left.\left.(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\right)\Big/$$

$$\left(\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(2\,\text{AppellF1}\left[1,m,1-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$\left((-1+m)\,\text{AppellF1}\left[2,m,2-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+m\,\text{AppellF1}\left[2,1+m,1-m,3,\right.\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2+\left(\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\left(\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+(1+m)\right.\right.$$

$$\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+2\left(\frac{1}{2}m\,\text{AppellF1}\left[\right.\right.$$

$$2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{2}(1+m)\,\text{AppellF1}\left[\right.$$

$$2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\left(m\left(-\frac{2}{3}(1-m)\,\text{AppellF1}\left[3,1+m,2-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.\right.$$

$$\left.\frac{2}{3}(1+m)\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$(1+m)\left(\frac{2}{3}m\,\text{AppellF1}\left[3,2+m,1-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\right.$$

$$\left.\left.\left.\left.\left.\frac{2}{3}(2+m)\,\text{AppellF1}\left[3,3+m,-m,4,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\right)\Big/$$

$$\left(2\,\text{AppellF1}\left[1,1+m,-m,2,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\left(m\,\text{AppellF1}\left[2,1+m,1-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\right.\right.\right.\right.$$

$$\left.\left.\left.\left.\frac{1}{2}(e+f x)\right]^2\right]+(1+m)\,\text{AppellF1}\left[2,2+m,-m,3,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right)\right)$$

- **Problem 643: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Sec}[e+f x])^m}{a+b\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 6, 141 leaves, 6 steps):

$$-\frac{b\,\text{Hypergeometric2F1}\left[1,\frac{m}{2},\frac{2+m}{2},\frac{b^2\,\text{Sec}[e+f x]^2}{a^2+b^2}\right](d\,\text{Sec}[e+f x])^m}{\left(a^2+b^2\right)f\,m}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},1,1-\frac{m}{2},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f x]^2}{a^2},-\text{Tan}[e+f x]^2\right](d\,\text{Sec}[e+f x])^m\left(\text{Sec}[e+f x]^2\right)^{-m/2}\text{Tan}[e+f x]}{a\,f}$$

Result (type 6, 1158 leaves):

$$\left((d\,\text{Sec}[e+f x])^m \left(b-b\left(\text{Sec}[e+f x]^2\right)^{m/2}+a\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1-\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f x]^2\right]\text{Tan}[e+f x]+b\,\text{AppellF1}\left[-m,-\frac{m}{2},-\frac{m}{2},\right.\right.\right.$$
$$\left.\left.\left.1-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\left(\frac{b(-\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}\left(\frac{b(\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}\right)\right)\Big/$$
$$\left(f\,(a+b\,\text{Tan}[e+f x])\left(a\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1-\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2-b\,m\left(\text{Sec}[e+f x]^2\right)^{m/2}\text{Tan}[e+f x]+\right.\right.$$
$$b\,m\,\text{AppellF1}\left[-m,-\frac{m}{2},-\frac{m}{2},1-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\text{Tan}[e+f x]$$
$$\left(\frac{b(-\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}\left(\frac{b(\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}+b\left(\text{Sec}[e+f x]^2\right)^{m/2}\left(\frac{b(-\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}$$
$$\left(\frac{b(\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}\left(-\frac{(a-\mathrm{i}\,b)\,b\,m^2\,\text{AppellF1}\left[1-m,1-\frac{m}{2},-\frac{m}{2},2-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\text{Sec}[e+f x]^2}{2\,(1-m)\,(a+b\,\text{Tan}[e+f x])^2}-\right.$$
$$\left.\frac{(a+\mathrm{i}\,b)\,b\,m^2\,\text{AppellF1}\left[1-m,-\frac{m}{2},1-\frac{m}{2},2-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\text{Sec}[e+f x]^2}{2\,(1-m)\,(a+b\,\text{Tan}[e+f x])^2}\right)-$$
$$\frac{1}{2}\,b\,m\,\text{AppellF1}\left[-m,-\frac{m}{2},-\frac{m}{2},1-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\left(\frac{b(-\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-1-\frac{m}{2}}$$
$$\left(\frac{b(\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}\left(-\frac{b^2\,\text{Sec}[e+f x]^2\,(-\mathrm{i}+\text{Tan}[e+f x])}{(a+b\,\text{Tan}[e+f x])^2}+\frac{b\,\text{Sec}[e+f x]^2}{a+b\,\text{Tan}[e+f x]}\right)-$$
$$\frac{1}{2}\,b\,m\,\text{AppellF1}\left[-m,-\frac{m}{2},-\frac{m}{2},1-m,\frac{a-\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]},\frac{a+\mathrm{i}\,b}{a+b\,\text{Tan}[e+f x]}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\left(\frac{b(-\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-m/2}$$
$$\left(\frac{b(\mathrm{i}+\text{Tan}[e+f x])}{a+b\,\text{Tan}[e+f x]}\right)^{-1-\frac{m}{2}}\left(-\frac{b^2\,\text{Sec}[e+f x]^2\,(\mathrm{i}+\text{Tan}[e+f x])}{(a+b\,\text{Tan}[e+f x])^2}+\frac{b\,\text{Sec}[e+f x]^2}{a+b\,\text{Tan}[e+f x]}\right)+$$
$$\left.\left.a\,m\,\text{Sec}[e+f x]^2\left(-\text{Hypergeometric2F1}\left[\frac{1}{2},1-\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f x]^2\right]+\left(1+\text{Tan}[e+f x]^2\right)^{-1+\frac{m}{2}}\right)\right)\right)$$

- **Problem 644: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{(d\,\text{Sec}[e+f x])^m}{(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 6, 227 leaves, 7 steps):

$$-\frac{2\,a\,b\,\text{Hypergeometric2F1}\left[2,\frac{m}{2},\frac{2+m}{2},\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]\,(d\,\text{Sec}[e+f\,x])^m}{\left(a^2+b^2\right)^2\,f\,m}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},2,1-\frac{m}{2},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\,(d\,\text{Sec}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\text{Tan}[e+f\,x]}{a^2\,f}+\frac{1}{3\,a^4\,f}$$

$$b^2\,\text{AppellF1}\left[\frac{3}{2},2,1-\frac{m}{2},\frac{5}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\,(d\,\text{Sec}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\text{Tan}[e+f\,x]^3$$

Result (type 6, 356 leaves) :

$$\left(2\,(-4+m)\,\text{AppellF1}\left[3-m,1-\frac{m}{2},1-\frac{m}{2},4-m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,(d\,\text{Sec}[e+f\,x])^m\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right)\Big/$$

$$\left(b\,f\,(-3+m)\,(a+b\,\text{Tan}[e+f\,x])^2\,\left((-2+m)\,\left((a+i\,b)\,\text{AppellF1}\left[4-m,1-\frac{m}{2},2-\frac{m}{2},5-m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]+\right.\right.\right.$$

$$\left.(a-i\,b)\,\text{AppellF1}\left[4-m,2-\frac{m}{2},1-\frac{m}{2},5-m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\right)+$$

$$\left.\left.2\,(-4+m)\,\text{AppellF1}\left[3-m,1-\frac{m}{2},1-\frac{m}{2},4-m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,(a+b\,\text{Tan}[e+f\,x])\right)\right)$$

- **Problem 645: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Sec}[e+f\,x])^m\,(a+b\,\text{Tan}[e+f\,x])^n\,dx$$

Optimal (type 6, 181 leaves, 3 steps) :

$$\frac{1}{\left(a^2+b^2\right)\,f\,(1+n)}b\,\text{AppellF1}\left[1+n,1-\frac{m}{2},1-\frac{m}{2},2+n,\frac{a+b\,\text{Tan}[e+f\,x]}{a+\sqrt{-b^2}},\frac{a+b\,\text{Tan}[e+f\,x]}{a-\sqrt{-b^2}}\right]$$

$$(d\,\text{Sec}[e+f\,x])^m\,(a+b\,\text{Tan}[e+f\,x])^{1+n}\,\left(1+\frac{a+b\,\text{Tan}[e+f\,x]}{-a+\sqrt{-b^2}}\right)^{-m/2}\,\left(1-\frac{a+b\,\text{Tan}[e+f\,x]}{a+\sqrt{-b^2}}\right)^{-m/2}$$

Result (type 6, 1527 leaves) :

$$\left(b\,\text{AppellF1}\left[1+n,1-\frac{m}{2},1-\frac{m}{2},2+n,\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right]\,(d\,\text{Sec}[e+f\,x])^m\right.$$

$$\left.\left(\text{Sec}[e+f\,x]^2\right)^{\frac{m+n}{2}}\,\left(-\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+i\,b}\right)^{-m/2}\,\left(-\frac{b\,(i+\text{Tan}[e+f\,x])}{a-i\,b}\right)^{-m/2}\,(a+b\,\text{Tan}[e+f\,x])^{1+n}\,\left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n\right)\Big/$$

$$\Bigg((a^2+b^2)\, f\,(1+n)\,\Bigg(\frac{1}{(a^2+b^2)\,(1+n)} b^2\, \text{AppellF1}\Big[1+n,\, 1-\frac{m}{2},\, 1-\frac{m}{2},\, 2+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big]$$

$$\left(\text{Sec}[e+f\,x]^2\right)^{1+\frac{m+n}{2}} \left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-m/2} \left(-\frac{b\,(\mathbb{i}+\text{Tan}[e+f\,x])}{a-\mathbb{i}\,b}\right)^{-m/2} \left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n +$$

$$\Bigg(b^2\, m\, \text{AppellF1}\Big[1+n,\, 1-\frac{m}{2},\, 1-\frac{m}{2},\, 2+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big] \left(\text{Sec}[e+f\,x]^2\right)^{1+\frac{m+n}{2}} \left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-m/2}$$

$$\left(-\frac{b\,(\mathbb{i}+\text{Tan}[e+f\,x])}{a-\mathbb{i}\,b}\right)^{-1-\frac{m}{2}} (a+b\,\text{Tan}[e+f\,x]) \left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n\Bigg) \Big/ \left(2\,(a-\mathbb{i}\,b)\,(a^2+b^2)\,(1+n)\right) +$$

$$\Bigg(b^2\, m\, \text{AppellF1}\Big[1+n,\, 1-\frac{m}{2},\, 1-\frac{m}{2},\, 2+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big] \left(\text{Sec}[e+f\,x]^2\right)^{1+\frac{m+n}{2}} \left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-1-\frac{m}{2}}$$

$$\left(-\frac{b\,(\mathbb{i}+\text{Tan}[e+f\,x])}{a-\mathbb{i}\,b}\right)^{-m/2} (a+b\,\text{Tan}[e+f\,x]) \left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n\Bigg) \Big/ \left(2\,(a+\mathbb{i}\,b)\,(a^2+b^2)\,(1+n)\right) + \frac{1}{(a^2+b^2)\,(1+n)}$$

$$b\left(\text{Sec}[e+f\,x]^2\right)^{\frac{m+n}{2}} \Bigg(\frac{b\left(1-\frac{m}{2}\right)(1+n)\,\text{AppellF1}\Big[2+n,\, 1-\frac{m}{2},\, 2-\frac{m}{2},\, 3+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big]\,\text{Sec}[e+f\,x]^2}{(a+\mathbb{i}\,b)\,(2+n)} +$$

$$\frac{b\left(1-\frac{m}{2}\right)(1+n)\,\text{AppellF1}\Big[2+n,\, 2-\frac{m}{2},\, 1-\frac{m}{2},\, 3+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big]\,\text{Sec}[e+f\,x]^2}{(a-\mathbb{i}\,b)\,(2+n)}\Bigg)$$

$$\left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-m/2} \left(-\frac{b\,(\mathbb{i}+\text{Tan}[e+f\,x])}{a-\mathbb{i}\,b}\right)^{-m/2} (a+b\,\text{Tan}[e+f\,x]) \left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n + \frac{1}{(a^2+b^2)\,(1+n)}$$

$$b\,(m+n)\,\text{AppellF1}\Big[1+n,\, 1-\frac{m}{2},\, 1-\frac{m}{2},\, 2+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big] \left(\text{Sec}[e+f\,x]^2\right)^{\frac{m+n}{2}} \text{Tan}[e+f\,x]$$

$$\left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-m/2} \left(-\frac{b\,(\mathbb{i}+\text{Tan}[e+f\,x])}{a-\mathbb{i}\,b}\right)^{-m/2} (a+b\,\text{Tan}[e+f\,x]) \left(\frac{a+b\,\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^n + \frac{1}{(a^2+b^2)\,(1+n)}$$

$$b\,n\,\text{AppellF1}\Big[1+n,\, 1-\frac{m}{2},\, 1-\frac{m}{2},\, 2+n,\, \frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b},\, \frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\Big] \left(\text{Sec}[e+f\,x]^2\right)^{\frac{m+n}{2}} \left(-\frac{b\,(-\mathbb{i}+\text{Tan}[e+f\,x])}{a+\mathbb{i}\,b}\right)^{-m/2}$$

$$\left(-\frac{b\,(\mathrm{i}+\mathrm{Tan}[e+f\,x])}{a-\mathrm{i}\,b}\right)^{-m/2}(a+b\,\mathrm{Tan}[e+f\,x])\left(\frac{a+b\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{-1+n}\left(b\,\sqrt{\mathrm{Sec}[e+f\,x]^2}-\frac{\mathrm{Tan}[e+f\,x]\,(a+b\,\mathrm{Tan}[e+f\,x])}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)\Bigg)\Bigg)$$

- **Problem 646: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sec}[c+d\,x]^6\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 3, 161 leaves, 3 steps):

$$\frac{(a^2+b^2)^2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^5\,d\,(1+n)}-\frac{4\,a\,(a^2+b^2)\,(a+b\,\mathrm{Tan}[c+d\,x])^{2+n}}{b^5\,d\,(2+n)}+\frac{2\,(3\,a^2+b^2)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3+n}}{b^5\,d\,(3+n)}-\frac{4\,a\,(a+b\,\mathrm{Tan}[c+d\,x])^{4+n}}{b^5\,d\,(4+n)}+\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5+n}}{b^5\,d\,(5+n)}$$

Result (type 3, 377 leaves):

$$\frac{1}{b^5\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)\,(5+n)}\mathrm{Sec}[c+d\,x]^4\Big(9\,a^4+33\,a^2\,b^2+64\,b^4+18\,a^2\,b^2\,n+96\,b^4\,n+3\,a^2\,b^2\,n^2+52\,b^4\,n^2+12\,b^4\,n^3+b^4\,n^4+2\,\big(6\,a^4+a^2\,b^2\,(20+9\,n+n^2)+b^4\,(24+26\,n+9\,n^2+n^3)\big)\,\mathrm{Cos}[2\,(c+d\,x)]+\big(3\,a^4-a^2\,b^2\,(-7+n^2)+b^4\,(8+6\,n+n^2)\big)\,\mathrm{Cos}[4\,(c+d\,x)]-6\,a^3\,b\,\mathrm{Sin}[2\,(c+d\,x)]-26\,a\,b^3\,\mathrm{Sin}[2\,(c+d\,x)]-6\,a^3\,b\,n\,\mathrm{Sin}[2\,(c+d\,x)]-40\,a\,b^3\,n\,\mathrm{Sin}[2\,(c+d\,x)]-16\,a\,b^3\,n^2\,\mathrm{Sin}[2\,(c+d\,x)]-2\,a\,b^3\,n^3\,\mathrm{Sin}[2\,(c+d\,x)]-3\,a^3\,b\,\mathrm{Sin}[4\,(c+d\,x)]-7\,a\,b^3\,\mathrm{Sin}[4\,(c+d\,x)]-3\,a^3\,b\,n\,\mathrm{Sin}[4\,(c+d\,x)]-9\,a\,b^3\,n\,\mathrm{Sin}[4\,(c+d\,x)]-2\,a\,b^3\,n^2\,\mathrm{Sin}[4\,(c+d\,x)]\Big)\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}$$

- **Problem 649: Unable to integrate problem.**

$$\int \mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 272 leaves, 6 steps):

$$-\frac{\left(\sqrt{-b^2}\,\left(1+\frac{a^2}{b^2}-n\right)-a\,n\right)\mathrm{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{4\,\left(1+\frac{a^2}{b^2}\right)\,b\,\left(a-\sqrt{-b^2}\right)\,d\,(1+n)}+\frac{b\,\left(\sqrt{-b^2}\,\left(1+\frac{a^2}{b^2}-n\right)+a\,n\right)\mathrm{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{4\,(a^2+b^2)\,\left(a+\sqrt{-b^2}\right)\,d\,(1+n)}+\frac{\mathrm{Cos}[c+d\,x]^2\,(b+a\,\mathrm{Tan}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(a^2+b^2)\,d}$$

Result (type 8, 23 leaves):

$$\int \mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Problem 650: Unable to integrate problem.

$$\int \mathrm{Cos}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 434 leaves, 7 steps):

$$\left(b\left(\frac{a\left(5+\frac{3a^2}{b^2}-2n\right)n}{b^2}-\frac{\sqrt{-b^2}\left(3a^4+a^2b^2\left(6-2n-n^2\right)+b^4\left(3-4n+n^2\right)\right)}{b^6}\right)\right.$$
$$\left.\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right](a+b\,\mathrm{Tan}[c+d\,x])^{1+n}\right)\Big/\left(16\left(1+\frac{a^2}{b^2}\right)^2\left(a-\sqrt{-b^2}\right)d\,(1+n)\right)+$$
$$\left(b\left(\frac{a\left(5+\frac{3a^2}{b^2}-2n\right)n}{b^2}+\frac{\sqrt{-b^2}\left(3a^4+a^2b^2\left(6-2n-n^2\right)+b^4\left(3-4n+n^2\right)\right)}{b^6}\right)\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\right.$$
$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}\right)\Big/\left(16\left(1+\frac{a^2}{b^2}\right)^2\left(a+\sqrt{-b^2}\right)d\,(1+n)\right)+\frac{\mathrm{Cos}[c+d\,x]^4\,(b+a\,\mathrm{Tan}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{4\left(a^2+b^2\right)d}+$$
$$\frac{b\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}\left(b^2\,(3-n)+a^2\,(1+n)+a\,b\left(5+\frac{3a^2}{b^2}-2n\right)\mathrm{Tan}[c+d\,x]\right)}{8\left(a^2+b^2\right)^2d}$$

Result (type 8, 23 leaves):

$$\int \mathrm{Cos}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Problem 651: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 159 leaves, 3 steps):

$$\frac{\mathrm{AppellF1}\left[1+n,-\frac{1}{2},-\frac{1}{2},2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-\sqrt{-b^2}},\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\mathrm{Sec}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b\,d\,(1+n)\sqrt{1-\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-\sqrt{-b^2}}}\sqrt{1-\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+\sqrt{-b^2}}}}$$

Result (type 6, 323 leaves):

$$\left(2\,(a-i\,b)\,(a+i\,b)\,(2+n)\,\text{AppellF1}\left[1+n,-\frac{1}{2},-\frac{1}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^n\right)\Big/\left(b\,d\,(1+n)\left(2\left(a^2+b^2\right)(2+n)\,\text{AppellF1}\left[1+n,-\frac{1}{2},-\frac{1}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]-\left((a-i\,b)\,\text{AppellF1}\left[2+n,-\frac{1}{2},\frac{1}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]+(a+i\,b)\,\text{AppellF1}\left[2+n,\frac{1}{2},-\frac{1}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]\right)(a+b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 652: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Sec}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 159 leaves, 3 steps):

$$\frac{1}{b\,d\,(1+n)}\text{AppellF1}\left[1+n,\frac{1}{2},\frac{1}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\sqrt{1-\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}}}\sqrt{1-\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}}$$

Result (type 6, 314 leaves):

$$\left(2\,(a-i\,b)\,(a+i\,b)\,(2+n)\,\text{AppellF1}\left[1+n,\frac{1}{2},\frac{1}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right](a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^n\right)\Big/\left(b\,d\,(1+n)\left(2\left(a^2+b^2\right)(2+n)\,\text{AppellF1}\left[1+n,\frac{1}{2},\frac{1}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]+\left((a-i\,b)\,\text{AppellF1}\left[2+n,\frac{1}{2},\frac{3}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]+(a+i\,b)\,\text{AppellF1}\left[2+n,\frac{3}{2},\frac{1}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]\right)(a+b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 653: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 161 leaves, 3 steps):

$$\frac{1}{b\,d\,(1+n)}\text{AppellF1}\left[1+n,\frac{3}{2},\frac{3}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]$$

$$\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\left(1-\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right)^{3/2}\left(1-\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right)^{3/2}$$

Result (type 6, 323 leaves) :

$$\left(2\,(a-\text{i}\,b)\,(a+\text{i}\,b)\,(2+n)\,\text{AppellF1}\left[1+n,\frac{3}{2},\frac{3}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\text{i}\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\text{i}\,b}\right]\right.$$
$$\left.\text{Cos}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^n\right)\Big/$$
$$\left(b\,d\,(1+n)\left(2\left(a^2+b^2\right)(2+n)\,\text{AppellF1}\left[1+n,\frac{3}{2},\frac{3}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\text{i}\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\text{i}\,b}\right]+\right.\right.$$
$$3\left((a-\text{i}\,b)\,\text{AppellF1}\left[2+n,\frac{3}{2},\frac{5}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\text{i}\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\text{i}\,b}\right]+\right.$$
$$\left.\left.\left.(a+\text{i}\,b)\,\text{AppellF1}\left[2+n,\frac{5}{2},\frac{3}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\text{i}\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\text{i}\,b}\right]\right)(a+b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 654: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 161 leaves, 3 steps) :

$$\frac{1}{b\,d\,(1+n)}\text{AppellF1}\left[1+n,\frac{5}{2},\frac{5}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}},\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]$$

$$\text{Cos}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\left(1-\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right)^{5/2}\left(1-\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right)^{5/2}$$

Result (type 6, 323 leaves) :

$$\left(2\,(a-i\,b)\,(a+i\,b)\,(2+n)\,\text{AppellF1}\left[1+n,\frac{5}{2},\frac{5}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]\right.$$
$$\left.\text{Cos}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^n\right)\Big/$$
$$\left(b\,d\,(1+n)\,\left(2\,\left(a^2+b^2\right)\,(2+n)\,\text{AppellF1}\left[1+n,\frac{5}{2},\frac{5}{2},2+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]+\right.\right.$$
$$5\,\left((a-i\,b)\,\text{AppellF1}\left[2+n,\frac{5}{2},\frac{7}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]+\right.$$
$$\left.\left.\left.(a+i\,b)\,\text{AppellF1}\left[2+n,\frac{7}{2},\frac{5}{2},3+n,\frac{a+b\,\text{Tan}[c+d\,x]}{a-i\,b},\frac{a+b\,\text{Tan}[c+d\,x]}{a+i\,b}\right]\right)\,(a+b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 656: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (e\,\text{Cos}[c+d\,x])^{5/2}\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 4, 90 leaves, 5 steps) :

$$-\frac{2\,i\,a\,(e\,\text{Cos}[c+d\,x])^{5/2}}{5\,d}+\frac{6\,a\,(e\,\text{Cos}[c+d\,x])^{5/2}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{5\,d\,\text{Cos}[c+d\,x]^{5/2}}+\frac{2\,a\,(e\,\text{Cos}[c+d\,x])^{5/2}\,\text{Tan}[c+d\,x]}{5\,d}$$

Result (type 5, 49 174 leaves) : Display of huge result suppressed!

- **Problem 658: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{e\,\text{Cos}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 4, 60 leaves, 4 steps) :

$$-\frac{2\,i\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}}{d}+\frac{2\,a\,\sqrt{e\,\text{Cos}[c+d\,x]}\,\text{EllipticE}\left[\frac{1}{2}\,(c+d\,x),2\right]}{d\,\sqrt{\text{Cos}[c+d\,x]}}$$

Result (type 5, 49 101 leaves) : Display of huge result suppressed!

- **Problem 659: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{a+i\,a\,\text{Tan}[c+d\,x]}{\sqrt{e\,\text{Cos}[c+d\,x]}}\,dx$$

Optimal (type 4, 60 leaves, 4 steps) :

$$\frac{2\,i\,a}{d\,\sqrt{e\,\text{Cos}[c+d\,x]}}+\frac{2\,a\,\sqrt{\text{Cos}[c+d\,x]}\,\text{EllipticF}\left[\frac{1}{2}\,(c+d\,x),2\right]}{d\,\sqrt{e\,\text{Cos}[c+d\,x]}}$$

Result (type 5, 143 leaves) :

$$-\frac{1}{d\,e\,\sqrt{\mathrm{Csc}[c]^2}}\sqrt{2}\,a\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\left(-i+\mathrm{Cot}[c]\right)$$
$$\left(\sqrt{2}\,\sqrt{\mathrm{Csc}[c]^2}+i\,\mathrm{Cos}[c+d\,x]\,\sqrt{1+\mathrm{Cos}[2\,d\,x-2\,\mathrm{ArcTan}[\mathrm{Cot}[c]]]}\,\mathrm{Csc}[c]\,\mathrm{HypergeometricPFQ}\left[\left\{\frac{1}{4},\frac{1}{2}\right\},\left\{\frac{5}{4}\right\},\mathrm{Sin}[d\,x-\mathrm{ArcTan}[\mathrm{Cot}[c]]]^2\right]\right.$$
$$\left.\mathrm{Sec}[d\,x-\mathrm{ArcTan}[\mathrm{Cot}[c]]]\right)\,\mathrm{Sin}[c]\,\left(\mathrm{Cos}[d\,x]-i\,\mathrm{Sin}[d\,x]\right)\,\left(-i+\mathrm{Tan}[c+d\,x]\right)$$

- **Problem 660: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a+i\,a\,\mathrm{Tan}[c+d\,x]}{(e\,\mathrm{Cos}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 4, 89 leaves, 5 steps):

$$\frac{2\,i\,a}{3\,d\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}}-\frac{2\,a\,\mathrm{Cos}[c+d\,x]^{3/2}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{d\,(e\,\mathrm{Cos}[c+d\,x])^{3/2}}+\frac{2\,a\,\mathrm{Sin}[c+d\,x]}{d\,e\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}$$

Result (type 5, 49 163 leaves): Display of huge result suppressed!

- **Problem 662: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a+i\,a\,\mathrm{Tan}[c+d\,x]}{(e\,\mathrm{Cos}[c+d\,x])^{7/2}}\,dx$$

Optimal (type 4, 130 leaves, 6 steps):

$$\frac{2\,i\,a}{7\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}-\frac{6\,a\,\mathrm{Cos}[c+d\,x]^{7/2}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{5\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}+\frac{2\,a\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{5\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}+\frac{6\,a\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]}{5\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}$$

Result (type 5, 49 233 leaves): Display of huge result suppressed!

- **Problem 664: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(e\,\mathrm{Cos}[c+d\,x])^{5/2}}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 4, 154 leaves, 6 steps):

$$\frac{42\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,\mathrm{EllipticE}\left[\frac{1}{2}\,(c+d\,x),\,2\right]}{65\,a^2\,d\,\mathrm{Cos}[c+d\,x]^{5/2}}+\frac{2\,\mathrm{Cos}[c+d\,x]\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,\mathrm{Sin}[c+d\,x]}{13\,a^2\,d}+$$
$$\frac{14\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,\mathrm{Tan}[c+d\,x]}{65\,a^2\,d}+\frac{4\,i\,\mathrm{Cos}[c+d\,x]^2\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}}{13\,d\,\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)}$$

Result (type 5, 49 333 leaves): Display of huge result suppressed!

- **Problem 666: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{e \operatorname{Cos}[c+d x]}}{(a+i a \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 4, 120 leaves, 5 steps):

$$\frac{2 \sqrt{e \operatorname{Cos}[c+d x]} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{3 a^2 d \sqrt{\operatorname{Cos}[c+d x]}}+\frac{2 i \sqrt{e \operatorname{Cos}[c+d x]}}{9 d (a+i a \operatorname{Tan}[c+d x])^2}+\frac{2 i \sqrt{e \operatorname{Cos}[c+d x]}}{9 d \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)}$$

Result (type 5, 49 223 leaves): Display of huge result suppressed!

- **Problem 668: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(e \operatorname{Cos}[c+d x])^{3/2} (a+i a \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 4, 92 leaves, 4 steps):

$$\frac{2 \operatorname{Cos}[c+d x]^{3/2} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{5 a^2 d (e \operatorname{Cos}[c+d x])^{3/2}}+\frac{4 i \operatorname{Cos}[c+d x]^2}{5 d (e \operatorname{Cos}[c+d x])^{3/2} \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)}$$

Result (type 5, 50 260 leaves): Display of huge result suppressed!

- **Problem 670: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(e \operatorname{Cos}[c+d x])^{7/2} (a+i a \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 4, 122 leaves, 5 steps):

$$\frac{6 \operatorname{Cos}[c+d x]^{7/2} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{a^2 d (e \operatorname{Cos}[c+d x])^{7/2}}-\frac{6 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{a^2 d (e \operatorname{Cos}[c+d x])^{7/2}}+\frac{4 i \operatorname{Cos}[c+d x]^2}{d (e \operatorname{Cos}[c+d x])^{7/2} \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)}$$

Result (type 5, 50 286 leaves): Display of huge result suppressed!

- **Problem 672: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(e \operatorname{Cos}[c+d x])^{11/2} (a+i a \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 4, 164 leaves, 6 steps):

$$-\frac{14 \operatorname{Cos}[c+d x]^{11/2} \operatorname{EllipticE}\left[\frac{1}{2} (c+d x), 2\right]}{5 a^2 d (e \operatorname{Cos}[c+d x])^{11/2}}+\frac{14 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x]}{15 a^2 d (e \operatorname{Cos}[c+d x])^{11/2}}+$$
$$\frac{14 \operatorname{Cos}[c+d x]^5 \operatorname{Sin}[c+d x]}{5 a^2 d (e \operatorname{Cos}[c+d x])^{11/2}}-\frac{4 i \operatorname{Cos}[c+d x]^2}{3 d (e \operatorname{Cos}[c+d x])^{11/2} \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)}$$

Result (type 5, 49 273 leaves): Display of huge result suppressed!

Problem 677: Result is not expressed in closed-form.

$$\int \frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{e \operatorname{Cos}[c+d x]}}\, dx$$

Optimal (type 3, 335 leaves, 10 steps):

$$\frac{i \sqrt{2} \sqrt{a} \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e}}\right]}{d \sqrt{e}}-\frac{i \sqrt{2} \sqrt{a} \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e}}\right]}{d \sqrt{e}}-$$
$$\frac{1}{\sqrt{2} d \sqrt{e}} i \sqrt{a} \operatorname{Log}\left[a \sqrt{e}-\sqrt{2} \sqrt{a} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}+\sqrt{e} \operatorname{Cos}[c+d x] (a+i a \operatorname{Tan}[c+d x])\right]+$$
$$\frac{1}{\sqrt{2} d \sqrt{e}} i \sqrt{a} \operatorname{Log}\left[a \sqrt{e}+\sqrt{2} \sqrt{a} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}+\sqrt{e} \operatorname{Cos}[c+d x] (a+i a \operatorname{Tan}[c+d x])\right]$$

Result (type 7, 111 leaves):

$$-\frac{e^{-\frac{1}{2} i (4 c+3 d x)} \left(1+e^{2 i (c+d x)}\right) \operatorname{RootSum}\left[1+e^{2 i c} \#1^4 \&, \frac{d x+2 i \operatorname{Log}\left[e^{\frac{i d x}{2}}-\#1\right]}{\#1} \&\right] \sqrt{a+i a \operatorname{Tan}[c+d x]}}{4 d \sqrt{e \operatorname{Cos}[c+d x]}}$$

Problem 678: Result is not expressed in closed-form.

$$\int \frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{(e \operatorname{Cos}[c+d x])^{3/2}}\, dx$$

Optimal (type 3, 524 leaves, 13 steps):

$$\frac{i a}{d (e \operatorname{Cos}[c+d x])^{3/2} \sqrt{a+i a \operatorname{Tan}[c+d x]}}-\frac{i a^{3/2} \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e}}\right] \operatorname{Sec}[c+d x]}{\sqrt{2} d e^{3/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}+$$
$$\frac{i a^{3/2} \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e}}\right] \operatorname{Sec}[c+d x]}{\sqrt{2} d e^{3/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}+$$
$$\frac{i a^{3/2} \operatorname{Log}\left[a-\frac{\sqrt{2} \sqrt{a} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{e}}+\operatorname{Cos}[c+d x] (a-i a \operatorname{Tan}[c+d x])\right] \operatorname{Sec}[c+d x]}{2 \sqrt{2} d e^{3/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}-$$
$$\frac{i a^{3/2} \operatorname{Log}\left[a+\frac{\sqrt{2} \sqrt{a} \sqrt{e \operatorname{Cos}[c+d x]} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{e}}+\operatorname{Cos}[c+d x] (a-i a \operatorname{Tan}[c+d x])\right] \operatorname{Sec}[c+d x]}{2 \sqrt{2} d e^{3/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}$$

Result (type 7, 135 leaves):

$$\frac{1}{8\,d\,e\,\sqrt{e\,\mathrm{Cos}[c+d\,x]}}\,e^{-\frac{3}{2}\,i\,(2\,c+d\,x)}\left(8\,i\,e^{\frac{1}{2}\,i\,(4\,c+d\,x)}-\left(1+e^{2\,i\,(c+d\,x)}\right)\mathrm{RootSum}\left[1+e^{2\,i\,c}\,\#1^4\,\&,\,\frac{d\,x+2\,i\,\mathrm{Log}\left[e^{\frac{i\,d\,x}{2}}-\#1\right]}{\#1^3}\,\&\right]\right)\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}$$

- **Problem 679: Result is not expressed in closed-form.**

$$\int\frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{(e\,\mathrm{Cos}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 512 leaves, 13 steps):

$$\frac{3\,i\,\sqrt{a}\,e^{5/2}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{4\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}}-\frac{3\,i\,\sqrt{a}\,e^{5/2}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]}{4\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}}-$$

$$\frac{3\,i\,\sqrt{a}\,e^{5/2}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{8\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}}+$$

$$\frac{3\,i\,\sqrt{a}\,e^{5/2}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right]}{8\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,(e\,\mathrm{Sec}[c+d\,x])^{5/2}}+$$

$$\frac{i\,a}{2\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}-\frac{3\,i\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{4\,d\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}}$$

Result (type 7, 186 leaves):

$$\left(\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,\left(-1\Big/\left(8\,\sqrt{2}\right)3\,e^{-\frac{1}{2}\,i\,(8\,c+7\,d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^3\sqrt{e^{-i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)}\,\mathrm{RootSum}\left[1+e^{2\,i\,c}\,\#1^4\,\&,\,\frac{d\,x+2\,i\,\mathrm{Log}\left[e^{\frac{i\,d\,x}{2}}-\#1\right]}{\#1}\,\&\right]+\right.\right.$$

$$\left.\left.4\,\mathrm{Cos}[c+d\,x]^{5/2}\,(-i+2\,\mathrm{Tan}[c+d\,x])\right)\right)\Big/\left(16\,d\,\sqrt{\mathrm{Cos}[c+d\,x]}\,(e\,\mathrm{Cos}[c+d\,x])^{5/2}\right)$$

- **Problem 680: Result is not expressed in closed-form.**

$$\int\frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{(e\,\mathrm{Cos}[c+d\,x])^{7/2}}\,dx$$

Optimal (type 3, 719 leaves, 15 steps):

$$\frac{i a}{3 d (e \operatorname{Cos}[c+d x])^{7/2} \sqrt{a+i a \operatorname{Tan}[c+d x]}}+\frac{5 i a \operatorname{Cos}[c+d x]^2}{8 d (e \operatorname{Cos}[c+d x])^{7/2} \sqrt{a+i a \operatorname{Tan}[c+d x]}}-$$

$$\frac{5 i a^{3/2} e^{7/2} \operatorname{ArcTan}\left[1-\frac{\sqrt{2} \sqrt{e} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \operatorname{Sec}[c+d x]}}\right] \operatorname{Sec}[c+d x]}{8 \sqrt{2} d (e \operatorname{Cos}[c+d x])^{7/2} (e \operatorname{Sec}[c+d x])^{7/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}+$$

$$\frac{5 i a^{3/2} e^{7/2} \operatorname{ArcTan}\left[1+\frac{\sqrt{2} \sqrt{e} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{a} \sqrt{e \operatorname{Sec}[c+d x]}}\right] \operatorname{Sec}[c+d x]}{8 \sqrt{2} d (e \operatorname{Cos}[c+d x])^{7/2} (e \operatorname{Sec}[c+d x])^{7/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}+$$

$$\frac{5 i a^{3/2} e^{7/2} \operatorname{Log}\left[a-\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{e \operatorname{Sec}[c+d x]}}+\operatorname{Cos}[c+d x] (a-i a \operatorname{Tan}[c+d x])\right] \operatorname{Sec}[c+d x]}{16 \sqrt{2} d (e \operatorname{Cos}[c+d x])^{7/2} (e \operatorname{Sec}[c+d x])^{7/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}-$$

$$\frac{5 i a^{3/2} e^{7/2} \operatorname{Log}\left[a+\frac{\sqrt{2} \sqrt{a} \sqrt{e} \sqrt{a-i a \operatorname{Tan}[c+d x]}}{\sqrt{e \operatorname{Sec}[c+d x]}}+\operatorname{Cos}[c+d x] (a-i a \operatorname{Tan}[c+d x])\right] \operatorname{Sec}[c+d x]}{16 \sqrt{2} d (e \operatorname{Cos}[c+d x])^{7/2} (e \operatorname{Sec}[c+d x])^{7/2} \sqrt{a-i a \operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}-\frac{5 i \operatorname{Cos}[c+d x]^2 \sqrt{a+i a \operatorname{Tan}[c+d x]}}{12 d (e \operatorname{Cos}[c+d x])^{7/2}}$$

Result (type 7, 306 leaves) :

$$\left(e^{-\frac{1}{2} i (4 c+d x)} \sqrt{e \operatorname{Cos}[c+d x]} \left(-15 \sqrt{e^{i d x}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{e^{-i (c+d x)} \left(1+e^{2 i (c+d x)}\right)} \operatorname{RootSum}\left[1+e^{2 i c} \#1^4 \&, \frac{d x+2 i \operatorname{Log}\left[e^{\frac{i d x}{2}}-\#1\right]}{\#1^3} \&\right]-\right.\right.$$

$$\left.\left.\frac{8 i e^{\frac{1}{2} i (4 c+d x)} \sqrt{e^{i d x}} \left(-15-42 e^{2 i (c+d x)}+5 e^{4 i (c+d x)}\right) \sqrt{\operatorname{Cos}[c+d x]} \sqrt{\operatorname{Sec}[c+d x]}}{\left(1+e^{2 i (c+d x)}\right)^3}\right) \sqrt{a+i a \operatorname{Tan}[c+d x]}\right) \Big/$$

$$\left(96 d e^4 \operatorname{Cos}[c+d x]^{5/2} \operatorname{Sec}[c+d x]^{5/2} \sqrt{\operatorname{Cos}[d x]+i \operatorname{Sin}[d x]}\right)$$

- **Problem 685: Result is not expressed in closed-form.**

$$\int \frac{1}{(e \operatorname{Cos}[c+d x])^{3/2} \sqrt{a+i a \operatorname{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 495 leaves, 11 steps) :

$$-\frac{i\sqrt{2}\sqrt{a}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{e\,\text{Cos}[c+d\,x]}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e}}\right]\text{Sec}[c+d\,x]}{d\,e^{3/2}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+\frac{i\sqrt{2}\sqrt{a}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{e\,\text{Cos}[c+d\,x]}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e}}\right]\text{Sec}[c+d\,x]}{d\,e^{3/2}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}+$$
$$\left(i\sqrt{a}\,\text{Log}\left[a\sqrt{e}-\sqrt{2}\sqrt{a}\sqrt{e\,\text{Cos}[c+d\,x]}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}+\sqrt{e}\,\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]\right)\Big/$$
$$\left(\sqrt{2}\,d\,e^{3/2}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)-$$
$$\left(i\sqrt{a}\,\text{Log}\left[a\sqrt{e}+\sqrt{2}\sqrt{a}\sqrt{e\,\text{Cos}[c+d\,x]}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}+\sqrt{e}\,\text{Cos}[c+d\,x]\,(a-i\,a\,\text{Tan}[c+d\,x])\right]\text{Sec}[c+d\,x]\right)\Big/$$
$$\left(\sqrt{2}\,d\,e^{3/2}\sqrt{a-i\,a\,\text{Tan}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)$$

Result (type 7, 100 leaves):

$$-\frac{e^{\frac{1}{2}i(-2c+d\,x)}\,\text{RootSum}\left[1+e^{2ic}\,\#1^4\,\&,\ \frac{d\,x+2\,i\,\text{Log}\left[e^{\frac{i\,d\,x}{2}}-\#1\right]}{\#1^3}\,\&\right]}{2\,d\,e\sqrt{e\,\text{Cos}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

- **Problem 686: Result is not expressed in closed-form.**

$$\int\frac{1}{(e\,\text{Cos}[c+d\,x])^{5/2}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 470 leaves, 12 steps):

$$\frac{i\,e^{5/2}\,\text{ArcTan}\left[1-\frac{\sqrt{2}\sqrt{e}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{\sqrt{2}\sqrt{a}\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}(e\,\text{Sec}[c+d\,x])^{5/2}}-\frac{i\,e^{5/2}\,\text{ArcTan}\left[1+\frac{\sqrt{2}\sqrt{e}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}\sqrt{e\,\text{Sec}[c+d\,x]}}\right]}{\sqrt{2}\sqrt{a}\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}(e\,\text{Sec}[c+d\,x])^{5/2}}-$$
$$\frac{i\,e^{5/2}\,\text{Log}\left[a-\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{2\sqrt{2}\sqrt{a}\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}(e\,\text{Sec}[c+d\,x])^{5/2}}+$$
$$\frac{i\,e^{5/2}\,\text{Log}\left[a+\frac{\sqrt{2}\sqrt{a}\sqrt{e}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{e\,\text{Sec}[c+d\,x]}}+\text{Cos}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])\right]}{2\sqrt{2}\sqrt{a}\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}(e\,\text{Sec}[c+d\,x])^{5/2}}-\frac{i\,\text{Cos}[c+d\,x]^2\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{a\,d\,(e\,\text{Cos}[c+d\,x])^{5/2}}$$

Result (type 7, 136 leaves):

$$-\left(\left(\text{Cos}\left[\frac{d\,x}{2}\right]+i\,\text{Sin}\left[\frac{d\,x}{2}\right]\right)\left(4\,i\,\text{Cos}\left[c+\frac{d\,x}{2}\right]+\text{Cos}[c+d\,x]\,\text{RootSum}\left[1+e^{2ic}\,\#1^4\,\&,\ \frac{d\,x+2\,i\,\text{Log}\left[e^{\frac{i\,d\,x}{2}}-\#1\right]}{\#1}\,\&\right]-4\,\text{Sin}\left[c+\frac{d\,x}{2}\right]\right)\right)\Big/$$
$$\left(4\,d\,e\,(e\,\text{Cos}[c+d\,x])^{3/2}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 687: Result is not expressed in closed-form.**

$$\int\frac{1}{(e\,\text{Cos}[c+d\,x])^{7/2}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 682 leaves, 14 steps):

$$\frac{3\,\mathrm{i}\,\mathrm{Cos}[c+d\,x]^2}{4\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}-\frac{3\,\mathrm{i}\,\sqrt{a}\,e^{7/2}\,\mathrm{ArcTan}\left[1-\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]\mathrm{Sec}[c+d\,x]}{4\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}+$$
$$\frac{3\,\mathrm{i}\,\sqrt{a}\,e^{7/2}\,\mathrm{ArcTan}\left[1+\frac{\sqrt{2}\,\sqrt{e}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}\,\sqrt{e\,\mathrm{Sec}[c+d\,x]}}\right]\mathrm{Sec}[c+d\,x]}{4\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}+$$
$$\frac{3\,\mathrm{i}\,\sqrt{a}\,e^{7/2}\,\mathrm{Log}\left[a-\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\right]\mathrm{Sec}[c+d\,x]}{8\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}-$$
$$\frac{3\,\mathrm{i}\,\sqrt{a}\,e^{7/2}\,\mathrm{Log}\left[a+\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{e}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{e\,\mathrm{Sec}[c+d\,x]}}+\mathrm{Cos}[c+d\,x]\,(a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\right]\mathrm{Sec}[c+d\,x]}{8\,\sqrt{2}\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}\,(e\,\mathrm{Sec}[c+d\,x])^{7/2}\,\sqrt{a-\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}-\frac{\mathrm{i}\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}{2\,a\,d\,(e\,\mathrm{Cos}[c+d\,x])^{7/2}}$$

Result (type 7, 165 leaves):

$$-\left(e^{\frac{1}{2}\,\mathrm{i}\,(-2\,c+d\,x)}\left(8\,\mathrm{i}\,e^{\frac{1}{2}\,\mathrm{i}\,(4\,c+d\,x)}\left(-3+e^{2\,\mathrm{i}\,(c+d\,x)}\right)+3\left(1+e^{2\,\mathrm{i}\,(c+d\,x)}\right)^2\mathrm{RootSum}\left[1+e^{2\,\mathrm{i}\,c}\,\#1^4\,\&,\,\frac{d\,x+2\,\mathrm{i}\,\mathrm{Log}\left[e^{\frac{\mathrm{i}\,d\,x}{2}}-\#1\right]}{\#1^3}\,\&\right]\right)\right)\Big/$$
$$\left(16\,d\,e^3\left(1+e^{2\,\mathrm{i}\,(c+d\,x)}\right)^2\sqrt{e\,\mathrm{Cos}[c+d\,x]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 691: Result more than twice size of optimal antiderivative.**

$$\int\frac{(e\,\mathrm{Cos}[c+d\,x])^m}{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 5, 86 leaves, 5 steps):

$$-\frac{1}{a\,d\,m}\,\mathrm{i}\,2^{-1-\frac{m}{2}}\,(e\,\mathrm{Cos}[c+d\,x])^m\,\mathrm{Hypergeometric2F1}\left[-\frac{m}{2},\,\frac{4+m}{2},\,1-\frac{m}{2},\,\frac{1}{2}\,(1-\mathrm{i}\,\mathrm{Tan}[c+d\,x])\right]\,(1+\mathrm{i}\,\mathrm{Tan}[c+d\,x])^{m/2}$$

Result (type 5, 201 leaves):

$$\left(2^{-1-m}\,e^{-\mathrm{i}\,(c+2\,d\,x)}\left(1+e^{2\,\mathrm{i}\,(c+d\,x)}\right)^{-m}\left(e^{-\mathrm{i}\,(c+d\,x)}\left(1+e^{2\,\mathrm{i}\,(c+d\,x)}\right)\right)^m\mathrm{Cos}[c+d\,x]^{-1-m}\,(e\,\mathrm{Cos}[c+d\,x])^m\right.$$
$$\left(m\,\mathrm{Hypergeometric2F1}\left[-1-\frac{m}{2},\,-m,\,-\frac{m}{2},\,-e^{2\,\mathrm{i}\,(c+d\,x)}\right]+e^{2\,\mathrm{i}\,(c+d\,x)}\,(2+m)\,\mathrm{Hypergeometric2F1}\left[-m,\,-\frac{m}{2},\,1-\frac{m}{2},\,-e^{2\,\mathrm{i}\,(c+d\,x)}\right]\right)$$
$$\left.(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\right)\Big/\,(a\,d\,m\,(2+m)\,(-\mathrm{i}+\mathrm{Tan}[c+d\,x]))$$

- **Problem 692: Result more than twice size of optimal antiderivative.**

$$\int\frac{(e\,\mathrm{Cos}[c+d\,x])^m}{(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 5, 86 leaves, 5 steps):

$$-\frac{1}{a^2\,d\,m}\,i\,2^{-2-\frac{m}{2}}\,(e\,\mathrm{Cos}[c+d\,x])^m\,\mathrm{Hypergeometric2F1}\left[-\frac{m}{2},\,\frac{6+m}{2},\,1-\frac{m}{2},\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[c+d\,x])\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{m/2}$$

Result (type 5, 264 leaves):

$$-\frac{1}{a^2\,d\,m\,(2+m)\,(4+m)\,(-i+\mathrm{Tan}[c+d\,x])^2}\,i\,2^{-2-m}\,e^{-2\,i\,(c+2\,d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{-m}\,\left(e^{-i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)\right)^m\,\mathrm{Cos}[c+d\,x]^{-2-m}\,(e\,\mathrm{Cos}[c+d\,x])^m$$
$$\left(m\,(2+m)\,\mathrm{Hypergeometric2F1}\left[-2-\frac{m}{2},\,-m,\,-1-\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]+e^{2\,i\,(c+d\,x)}\,(4+m)\,\left(2\,m\,\mathrm{Hypergeometric2F1}\left[-1-\frac{m}{2},\,-m,\,-\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]+\right.\right.$$
$$\left.\left.e^{2\,i\,(c+d\,x)}\,(2+m)\,\mathrm{Hypergeometric2F1}\left[-m,\,-\frac{m}{2},\,1-\frac{m}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right)\right)\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2$$

- **Problem 694: Result more than twice size of optimal antiderivative.**

$$\int\frac{(e\,\mathrm{Cos}[c+d\,x])^m}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 5, 104 leaves, 5 steps):

$$-\frac{1}{d\,m\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\,i\,2^{-\frac{1}{2}-\frac{m}{2}}\,(e\,\mathrm{Cos}[c+d\,x])^m\,\mathrm{Hypergeometric2F1}\left[-\frac{m}{2},\,\frac{3+m}{2},\,1-\frac{m}{2},\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[c+d\,x])\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{\frac{1+m}{2}}$$

Result (type 5, 215 leaves):

$$\left(i\,2^{-\frac{1}{2}-m}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{-\frac{1}{2}-m}\,\left(e^{-i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)\right)^m\,\mathrm{Cos}[c+d\,x]^{-m}\,(e\,\mathrm{Cos}[c+d\,x])^m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-1-m),\,-\frac{1}{2}-m,\,\frac{1-m}{2},\,-e^{2\,i\,(c+d\,x)}\right]\right.$$
$$\left.\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x]}\right)\Big/\left(d\,\sqrt{e^{i\,d\,x}}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,(1+m)\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 696: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int(d\,\mathrm{Cos}[e+f\,x])^m\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,dx$$

Optimal (type 5, 155 leaves, 5 steps):

$$-\frac{a\,b\,(2-m)\,(d\,\mathrm{Cos}[e+f\,x])^m}{f\,(1-m)\,m}+\left(\left(b^2-a^2\,(1-m)\right)\,\mathrm{Cos}[e+f\,x]\,(d\,\mathrm{Cos}[e+f\,x])^m\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1+m}{2},\,\frac{3+m}{2},\,\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]\right)\Big/$$
$$\left(f\,(1-m)\,(1+m)\,\sqrt{\mathrm{Sin}[e+f\,x]^2}\right)+\frac{b\,(d\,\mathrm{Cos}[e+f\,x])^m\,(a+b\,\mathrm{Tan}[e+f\,x])}{f\,(1-m)}$$

Result (type 5, 465 leaves):

$$-\Bigg(i\,a\,b\,\text{Cos}[e+f\,x]^{2-m}\,(d\,\text{Cos}[e+f\,x])^m\Bigg(1/(-2+m)\,i\,2^{1-m}\,e^{2\,i\,(e+f\,x)}\,\left(e^{-i\,(e+f\,x)}+e^{i\,(e+f\,x)}\right)^m\left(1+e^{2\,i\,(e+f\,x)}\right)^{-m}\text{Hypergeometric2F1}\left[1-m,\,1-\frac{m}{2},\,2-\frac{m}{2},\,-e^{2\,i\,(e+f\,x)}\right]-$$

$$\frac{i\,2^{1-m}\left(e^{-i\,(e+f\,x)}+e^{i\,(e+f\,x)}\right)^m\left(1+e^{2\,i\,(e+f\,x)}\right)^{-m}\text{Hypergeometric2F1}\left[1-m,\,-\frac{m}{2},\,1-\frac{m}{2},\,-e^{2\,i\,(e+f\,x)}\right]}{m}\Bigg)\,(a+b\,\text{Tan}[e+f\,x])^2\Bigg)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right)-\Bigg(b^2\,\text{Cos}[e+f\,x]\,(d\,\text{Cos}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,\frac{1}{2}\,(-1+m),\,\frac{1+m}{2},\,\text{Cos}[e+f\,x]^2\right]$$

$$\text{Sin}[e+f\,x]^3\,(a+b\,\text{Tan}[e+f\,x])^2\Bigg)\Big/\left(f\,(-1+m)\left(\text{Sin}[e+f\,x]^2\right)^{3/2}(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right)-$$

$$\left(a^2\,\text{Cos}[e+f\,x]^3\,(d\,\text{Cos}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1+m}{2},\,\frac{3+m}{2},\,\text{Cos}[e+f\,x]^2\right]\text{Sin}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/$$

$$\left(f\,(1+m)\,\sqrt{\text{Sin}[e+f\,x]^2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right)$$

- **Problem 697: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int (d\,\text{Cos}[e+f\,x])^m\,(a+b\,\text{Tan}[e+f\,x])\,dx$$

Optimal (type 5, 90 leaves, 4 steps):

$$-\frac{b\,(d\,\text{Cos}[e+f\,x])^m}{f\,m}-\frac{a\,(d\,\text{Cos}[e+f\,x])^{1+m}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1+m}{2},\,\frac{3+m}{2},\,\text{Cos}[e+f\,x]^2\right]\text{Sin}[e+f\,x]}{d\,f\,(1+m)\,\sqrt{\text{Sin}[e+f\,x]^2}}$$

Result (type 5, 297 leaves):

$$\frac{1}{f\,(-2+m)\,m\,(1+m)\,\sqrt{\text{Sin}[e+f\,x]^2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])}\,2^{-m}\left(1+e^{2\,i\,(e+f\,x)}\right)^{-m}\text{Cos}[e+f\,x]^{1-m}\,(d\,\text{Cos}[e+f\,x])^m$$

$$\Bigg(-2^m\,a\left(1+e^{2\,i\,(e+f\,x)}\right)^m(-2+m)\,m\,\text{Cos}[e+f\,x]^{1+m}\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,\frac{1+m}{2},\,\frac{3+m}{2},\,\text{Cos}[e+f\,x]^2\right]\text{Sin}[e+f\,x]+$$

$$b\left(e^{-i\,(e+f\,x)}\left(1+e^{2\,i\,(e+f\,x)}\right)\right)^m(1+m)\left(e^{2\,i\,(e+f\,x)}\,m\,\text{Hypergeometric2F1}\left[1-m,\,1-\frac{m}{2},\,2-\frac{m}{2},\,-e^{2\,i\,(e+f\,x)}\right]-\right.$$

$$\left.(-2+m)\,\text{Hypergeometric2F1}\left[1-m,\,-\frac{m}{2},\,1-\frac{m}{2},\,-e^{2\,i\,(e+f\,x)}\right]\right)\sqrt{\text{Sin}[e+f\,x]^2}\Bigg)\,(a+b\,\text{Tan}[e+f\,x])$$

- **Problem 698: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(d\,\text{Cos}[e+f\,x])^m}{a+b\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 6, 140 leaves, 7 steps):

$$\frac{b\,(d\,\text{Cos}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[1,-\frac{m}{2},1-\frac{m}{2},\frac{b^2\,\text{Sec}[e+f\,x]^2}{a^2+b^2}\right]}{\left(a^2+b^2\right)\,f\,m}+$$

$$\frac{\text{AppellF1}\left[\frac{1}{2},1,\frac{2+m}{2},\frac{3}{2},\frac{b^2\,\text{Tan}[e+f\,x]^2}{a^2},-\text{Tan}[e+f\,x]^2\right]\,(d\,\text{Cos}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{m/2}\,\text{Tan}[e+f\,x]}{a\,f}$$

Result (type 6, 1132 leaves) :

$$\Bigg((d\,\text{Cos}[e+f\,x])^m\,\Bigg(b\,\left(-1+\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\right)+a\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]-$$

$$b\,\text{AppellF1}\left[m,\frac{m}{2},\frac{m}{2},1+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\left(\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}\,\left(\frac{b\,(i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(f\,(a+b\,\text{Tan}[e+f\,x])\,\Bigg(a\,m\,\text{Hypergeometric2F1}\left[\frac{1}{2},1+\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f\,x]^2\right]\,\text{Sec}[e+f\,x]^2-b\,m\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\text{Tan}[e+f\,x]+$$

$$b\,m\,\text{AppellF1}\left[m,\frac{m}{2},\frac{m}{2},1+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\text{Tan}[e+f\,x]$$

$$\left(\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}\,\left(\frac{b\,(i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}-b\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\left(\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}$$

$$\left(\frac{b\,(i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}\,\left(-\frac{(a-i\,b)\,b\,m^2\,\text{AppellF1}\left[1+m,1+\frac{m}{2},\frac{m}{2},2+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\text{Sec}[e+f\,x]^2}{2\,(1+m)\,(a+b\,\text{Tan}[e+f\,x])^2}-\right.$$

$$\left.\frac{(a+i\,b)\,b\,m^2\,\text{AppellF1}\left[1+m,\frac{m}{2},1+\frac{m}{2},2+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\text{Sec}[e+f\,x]^2}{2\,(1+m)\,(a+b\,\text{Tan}[e+f\,x])^2}\right)-$$

$$\frac{1}{2}\,b\,m\,\text{AppellF1}\left[m,\frac{m}{2},\frac{m}{2},1+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\left(\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{-1+\frac{m}{2}}$$

$$\left(\frac{b\,(i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}\,\left(-\frac{b^2\,\text{Sec}[e+f\,x]^2\,(-i+\text{Tan}[e+f\,x])}{(a+b\,\text{Tan}[e+f\,x])^2}+\frac{b\,\text{Sec}[e+f\,x]^2}{a+b\,\text{Tan}[e+f\,x]}\right)-$$

$$\frac{1}{2}\,b\,m\,\text{AppellF1}\left[m,\frac{m}{2},\frac{m}{2},1+m,\frac{a-i\,b}{a+b\,\text{Tan}[e+f\,x]},\frac{a+i\,b}{a+b\,\text{Tan}[e+f\,x]}\right]\,\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\,\left(\frac{b\,(-i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{m/2}$$

$$\left(\frac{b\,(i+\text{Tan}[e+f\,x])}{a+b\,\text{Tan}[e+f\,x]}\right)^{-1+\frac{m}{2}}\,\left(-\frac{b^2\,\text{Sec}[e+f\,x]^2\,(i+\text{Tan}[e+f\,x])}{(a+b\,\text{Tan}[e+f\,x])^2}+\frac{b\,\text{Sec}[e+f\,x]^2}{a+b\,\text{Tan}[e+f\,x]}\right)+$$

$$a\,m\,\text{Sec}[e+f\,x]^2\,\left(-\text{Hypergeometric2F1}\left[\frac{1}{2},1+\frac{m}{2},\frac{3}{2},-\text{Tan}[e+f\,x]^2\right]+\left(1+\text{Tan}[e+f\,x]^2\right)^{-1-\frac{m}{2}}\right)\Bigg)\Bigg)$$

- **Problem 699: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{(d \operatorname{Cos}[e+f x])^m}{(a+b \operatorname{Tan}[e+f x])^2} \, dx$$

Optimal (type 6, 227 leaves, 8 steps):

$$\frac{2 a b (d \operatorname{Cos}[e+f x])^m \operatorname{Hypergeometric2F1}\left[2, -\frac{m}{2}, 1-\frac{m}{2}, \frac{b^2 \operatorname{Sec}[e+f x]^2}{a^2+b^2}\right]}{\left(a^2+b^2\right)^2 f m}+$$

$$\frac{\operatorname{AppellF1}\left[\frac{1}{2}, 2, \frac{2+m}{2}, \frac{3}{2}, \frac{b^2 \operatorname{Tan}[e+f x]^2}{a^2}, -\operatorname{Tan}[e+f x]^2\right] (d \operatorname{Cos}[e+f x])^m \left(\operatorname{Sec}[e+f x]^2\right)^{m/2} \operatorname{Tan}[e+f x]}{a^2 f}+\frac{1}{3 a^4 f}$$

$$b^2 \operatorname{AppellF1}\left[\frac{3}{2}, 2, \frac{2+m}{2}, \frac{5}{2}, \frac{b^2 \operatorname{Tan}[e+f x]^2}{a^2}, -\operatorname{Tan}[e+f x]^2\right] (d \operatorname{Cos}[e+f x])^m \left(\operatorname{Sec}[e+f x]^2\right)^{m/2} \operatorname{Tan}[e+f x]^3$$

Result (type 6, 361 leaves):

$$-\left(\left(2 (4+m) \operatorname{AppellF1}\left[3+m, 1+\frac{m}{2}, 1+\frac{m}{2}, 4+m, \frac{a-i b}{a+b \operatorname{Tan}[e+f x]}, \frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]\right.\right.$$
$$\left.(d \operatorname{Cos}[e+f x])^m \operatorname{Sec}[e+f x]^2 (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^5\right) \Big/$$
$$\left(b f (3+m) \left((2+m) \left((a+i b) \operatorname{AppellF1}\left[4+m, 1+\frac{m}{2}, 2+\frac{m}{2}, 5+m, \frac{a-i b}{a+b \operatorname{Tan}[e+f x]}, \frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]+\right.\right.\right.$$
$$\left.(a-i b) \operatorname{AppellF1}\left[4+m, 2+\frac{m}{2}, 1+\frac{m}{2}, 5+m, \frac{a-i b}{a+b \operatorname{Tan}[e+f x]}, \frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right]\right) \operatorname{Cos}[e+f x]+$$
$$\left.\left.\left.2 (4+m) \operatorname{AppellF1}\left[3+m, 1+\frac{m}{2}, 1+\frac{m}{2}, 4+m, \frac{a-i b}{a+b \operatorname{Tan}[e+f x]}, \frac{a+i b}{a+b \operatorname{Tan}[e+f x]}\right] (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])\right) (a+b \operatorname{Tan}[e+f x])^5\right)\right)$$

- **Problem 700: Result unnecessarily involves imaginary or complex numbers.**

$$\int (d \operatorname{Cos}[e+f x])^m (a+b \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 6, 187 leaves, 4 steps):

$$\frac{1}{b f (1+n)} \operatorname{AppellF1}\left[1+n, \frac{2+m}{2}, \frac{2+m}{2}, 2+n, \frac{a+b \operatorname{Tan}[e+f x]}{a-\sqrt{-b^2}}, \frac{a+b \operatorname{Tan}[e+f x]}{a+\sqrt{-b^2}}\right]$$

$$\operatorname{Cos}[e+f x]^2 (d \operatorname{Cos}[e+f x])^m (a+b \operatorname{Tan}[e+f x])^{1+n} \left(1-\frac{a+b \operatorname{Tan}[e+f x]}{a-\sqrt{-b^2}}\right)^{\frac{2+m}{2}} \left(1-\frac{a+b \operatorname{Tan}[e+f x]}{a+\sqrt{-b^2}}\right)^{\frac{2+m}{2}}$$

Result (type 6, 365 leaves):

$$\left(2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(2+n)\,\mathrm{AppellF1}\left[1+n,\,1+\frac{m}{2},\,1+\frac{m}{2},\,2+n,\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a-\mathrm{i}\,b},\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]\right.$$
$$\left.\mathrm{Cos}[e+f\,x]\,(d\,\mathrm{Cos}[e+f\,x])^m\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(a+b\,\mathrm{Tan}[e+f\,x])^n\right)\Big/$$
$$\left(b\,f\,(1+n)\,\left(2\,(a^2+b^2)\,(2+n)\,\mathrm{AppellF1}\left[1+n,\,1+\frac{m}{2},\,1+\frac{m}{2},\,2+n,\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a-\mathrm{i}\,b},\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]+\right.\right.$$
$$(2+m)\,\left((a-\mathrm{i}\,b)\,\mathrm{AppellF1}\left[2+n,\,1+\frac{m}{2},\,2+\frac{m}{2},\,3+n,\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a-\mathrm{i}\,b},\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]+\right.$$
$$\left.\left.\left.(a+\mathrm{i}\,b)\,\mathrm{AppellF1}\left[2+n,\,2+\frac{m}{2},\,1+\frac{m}{2},\,3+n,\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a-\mathrm{i}\,b},\,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]\right)\,(a+b\,\mathrm{Tan}[e+f\,x])\right)\right)$$

Test results for the 91 problems in "4.3.1.3 (d sin)^m (a+b tan)^n.m"

- **Problem 7: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Csc}[x]^3}{\mathrm{i}+\mathrm{Tan}[x]}\,dx$$

Optimal (type 3, 24 leaves, 8 steps):

$$-\frac{1}{2}\,\mathrm{i}\,\mathrm{ArcTanh}[\mathrm{Cos}[x]]-\mathrm{Csc}[x]+\frac{1}{2}\,\mathrm{i}\,\mathrm{Cot}[x]\,\mathrm{Csc}[x]$$

Result (type 3, 75 leaves):

$$-\frac{1}{2}\,\mathrm{Cot}\left[\frac{x}{2}\right]+\frac{1}{8}\,\mathrm{i}\,\mathrm{Csc}\left[\frac{x}{2}\right]^2-\frac{1}{2}\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{2}\right]\right]+\frac{1}{2}\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{x}{2}\right]\right]-\frac{1}{8}\,\mathrm{i}\,\mathrm{Sec}\left[\frac{x}{2}\right]^2-\frac{1}{2}\,\mathrm{Tan}\left[\frac{x}{2}\right]$$

- **Problem 9: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Csc}[x]^5}{\mathrm{i}+\mathrm{Tan}[x]}\,dx$$

Optimal (type 3, 40 leaves, 9 steps):

$$-\frac{1}{8}\,\mathrm{i}\,\mathrm{ArcTanh}[\mathrm{Cos}[x]]-\frac{1}{8}\,\mathrm{i}\,\mathrm{Cot}[x]\,\mathrm{Csc}[x]-\frac{\mathrm{Csc}[x]^3}{3}+\frac{1}{4}\,\mathrm{i}\,\mathrm{Cot}[x]\,\mathrm{Csc}[x]^3$$

Result (type 3, 139 leaves):

$$-\frac{1}{12}\,\mathrm{Cot}\left[\frac{x}{2}\right]-\frac{1}{32}\,\mathrm{i}\,\mathrm{Csc}\left[\frac{x}{2}\right]^2-\frac{1}{24}\,\mathrm{Cot}\left[\frac{x}{2}\right]\,\mathrm{Csc}\left[\frac{x}{2}\right]^2+\frac{1}{64}\,\mathrm{i}\,\mathrm{Csc}\left[\frac{x}{2}\right]^4-$$
$$\frac{1}{8}\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{x}{2}\right]\right]+\frac{1}{8}\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{32}\,\mathrm{i}\,\mathrm{Sec}\left[\frac{x}{2}\right]^2-\frac{1}{64}\,\mathrm{i}\,\mathrm{Sec}\left[\frac{x}{2}\right]^4-\frac{1}{12}\,\mathrm{Tan}\left[\frac{x}{2}\right]-\frac{1}{24}\,\mathrm{Sec}\left[\frac{x}{2}\right]^2\,\mathrm{Tan}\left[\frac{x}{2}\right]$$

Problem 15: Result more than twice size of optimal antiderivative.

$$\int \text{Sin}[c+d x] (a+b \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 37 leaves, 6 steps):

$$\frac{b \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{a \text{Cos}[c+d x]}{d}-\frac{b \text{Sin}[c+d x]}{d}$$

Result (type 3, 93 leaves):

$$-\frac{a \text{Cos}[c] \text{Cos}[d x]}{d}-\frac{b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{d}+\frac{b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{d}+\frac{a \text{Sin}[c] \text{Sin}[d x]}{d}-\frac{b \text{Sin}[c+d x]}{d}$$

Problem 16: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d x] (a+b \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 26 leaves, 4 steps):

$$-\frac{a \text{ArcTanh}[\text{Cos}[c+d x]]}{d}+\frac{b \text{ArcTanh}[\text{Sin}[c+d x]]}{d}$$

Result (type 3, 109 leaves):

$$-\frac{a \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}-\frac{b \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]-\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{a \text{Log}\left[\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}+\frac{b \text{Log}\left[\text{Cos}\left[\frac{c}{2}+\frac{d x}{2}\right]+\text{Sin}\left[\frac{c}{2}+\frac{d x}{2}\right]\right]}{d}$$

Problem 18: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d x]^3 (a+b \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 60 leaves, 7 steps):

$$-\frac{a \text{ArcTanh}[\text{Cos}[c+d x]]}{2 d}+\frac{b \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{b \text{Csc}[c+d x]}{d}-\frac{a \text{Cot}[c+d x] \text{Csc}[c+d x]}{2 d}$$

Result (type 3, 172 leaves):

$$-\frac{b \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{2 d}-\frac{a \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2}{8 d}-\frac{a \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}-\frac{b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{d}+$$
$$\frac{a \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{2 d}+\frac{b \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{d}+\frac{a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{8 d}-\frac{b \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2 d}$$

Problem 20: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d x]^5 (a+b \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 98 leaves, 9 steps):

$$-\frac{3\,a\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,d}+\frac{b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{b\,\text{Csc}[c+d\,x]}{d}-\frac{3\,a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,d}-\frac{b\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{a\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,d}$$

Result (type 3, 272 leaves) :

$$-\frac{7\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{3\,a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,d}-\frac{b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{24\,d}-\frac{a\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{3\,a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}-$$
$$\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+\frac{3\,a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{8\,d}+\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]}{d}+$$
$$\frac{3\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{32\,d}+\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4}{64\,d}-\frac{7\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{12\,d}-\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{24\,d}$$

- **Problem 26: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 43 leaves, 6 steps) :

$$-\frac{a^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}+\frac{2\,a\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{b^2\,\text{Sec}[c+d\,x]}{d}$$

Result (type 3, 97 leaves) :

$$\frac{1}{d}\left(a\left(-a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\right.\right.$$
$$\left.\left.a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\right)+b^2\,\text{Sec}[c+d\,x]\right)$$

- **Problem 27: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 42 leaves, 3 steps) :

$$-\frac{a^2\,\text{Cot}[c+d\,x]}{d}+\frac{2\,a\,b\,\text{Log}[\text{Tan}[c+d\,x]]}{d}+\frac{b^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 91 leaves) :

$$-\left(\text{Cos}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]\,(a\,\text{Cot}[c+d\,x]+2\,b\,(\text{Log}[\text{Cos}[c+d\,x]]-\text{Log}[\text{Sin}[c+d\,x]]))-b^2\,\text{Sin}[c+d\,x]\right)\,(a+b\,\text{Tan}[c+d\,x])^2\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

- **Problem 28: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 95 leaves, 10 steps) :

$$-\frac{a^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}+\frac{2\,a\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]}{d}-\frac{a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d}+\frac{b^2\,\text{Sec}[c+d\,x]}{d}$$

Result (type 3, 250 leaves) :

$$\frac{1}{8\,d}\left(8\,b^2-8\,a\,b\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-a^2\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2-4\,\left(a^2+2\,b^2\right)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-16\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+4\,\left(a^2+2\,b^2\right)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+16\,a\,b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+a^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2+\frac{8\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}-\frac{8\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]}-8\,a\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

- **Problem 30: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 165 leaves, 13 steps) :

$$-\frac{3\,a^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,d}-\frac{3\,b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}+\frac{2\,a\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]}{d}-\frac{3\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,d}-\frac{2\,a\,b\,\text{Csc}[c+d\,x]^3}{3\,d}-\frac{a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,d}+\frac{3\,b^2\,\text{Sec}[c+d\,x]}{2\,d}-\frac{b^2\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2\,d}$$

Result (type 3, 994 leaves) :

$$\frac{b^2 \text{Cos}[c+d x]^2 (a+b \text{Tan}[c+d x])^2}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{7 a b \text{Cos}[c+d x]^2 \text{Cot}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^2}{6 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+$$

$$\frac{\left(-3 a^2-4 b^2\right) \text{Cos}[c+d x]^2 \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (a+b \text{Tan}[c+d x])^2}{32 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{a b \text{Cos}[c+d x]^2 \text{Cot}\left[\frac{1}{2} (c+d x)\right] \text{Csc}\left[\frac{1}{2} (c+d x)\right]^2 (a+b \text{Tan}[c+d x])^2}{12 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-$$

$$\frac{a^2 \text{Cos}[c+d x]^2 \text{Csc}\left[\frac{1}{2} (c+d x)\right]^4 (a+b \text{Tan}[c+d x])^2}{64 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{3 \left(a^2+4 b^2\right) \text{Cos}[c+d x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^2}{8 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-$$

$$\frac{2 a b \text{Cos}[c+d x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^2}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+$$

$$\frac{3 \left(a^2+4 b^2\right) \text{Cos}[c+d x]^2 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^2}{8 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+$$

$$\frac{2 a b \text{Cos}[c+d x]^2 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^2}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{\left(3 a^2+4 b^2\right) \text{Cos}[c+d x]^2 \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a+b \text{Tan}[c+d x])^2}{32 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+$$

$$\frac{a^2 \text{Cos}[c+d x]^2 \text{Sec}\left[\frac{1}{2} (c+d x)\right]^4 (a+b \text{Tan}[c+d x])^2}{64 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{b^2 \text{Cos}[c+d x]^2 \text{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^2}{d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-$$

$$\frac{b^2 \text{Cos}[c+d x]^2 \text{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^2}{d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-$$

$$\frac{7 a b \text{Cos}[c+d x]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^2}{6 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{a b \text{Cos}[c+d x]^2 \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^2}{12 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}$$

- **Problem 32: Result more than twice size of optimal antiderivative.**

$$\int \text{Sin}[c+d x]^3 (a+b \text{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 205 leaves, 16 steps):

$$\frac{3 a^2 b \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{5 b^3 \text{ArcTanh}[\text{Sin}[c+d x]]}{2 d}-\frac{a^3 \text{Cos}[c+d x]}{d}+\frac{6 a b^2 \text{Cos}[c+d x]}{d}+\frac{a^3 \text{Cos}[c+d x]^3}{3 d}-\frac{a b^2 \text{Cos}[c+d x]^3}{d}+$$

$$\frac{3 a b^2 \text{Sec}[c+d x]}{d}-\frac{3 a^2 b \text{Sin}[c+d x]}{d}+\frac{5 b^3 \text{Sin}[c+d x]}{2 d}-\frac{a^2 b \text{Sin}[c+d x]^3}{d}+\frac{5 b^3 \text{Sin}[c+d x]^3}{6 d}+\frac{b^3 \text{Sin}[c+d x]^3 \text{Tan}[c+d x]^2}{2 d}$$

Result (type 3, 771 leaves):

$$\frac{3\,a\,b^2\,\mathrm{Cos}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{3\,a\,\left(a^2-7\,b^2\right)\,\mathrm{Cos}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{4\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{a\,\left(a^2-3\,b^2\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Cos}[3\,(c+d\,x)]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{12\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{\left(-6\,a^2\,b+5\,b^3\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{\left(6\,a^2\,b-5\,b^3\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{b^3\,\mathrm{Cos}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{4\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+$$

$$\frac{3\,a\,b^2\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-$$

$$\frac{b^3\,\mathrm{Cos}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{4\,d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-$$

$$\frac{3\,a\,b^2\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{d\,\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-$$

$$\frac{3\,b\,\left(5\,a^2-3\,b^2\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{4\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}+\frac{b\,\left(3\,a^2-b^2\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[3\,(c+d\,x)]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{12\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}$$

- **Problem 34: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sin}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 133 leaves, 13 steps):

$$\frac{3\,a^2\,b\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{3\,b^3\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{2\,d}-\frac{a^3\,\mathrm{Cos}[c+d\,x]}{d}+$$

$$\frac{3\,a\,b^2\,\mathrm{Cos}[c+d\,x]}{d}+\frac{3\,a\,b^2\,\mathrm{Sec}[c+d\,x]}{d}-\frac{3\,a^2\,b\,\mathrm{Sin}[c+d\,x]}{d}+\frac{3\,b^3\,\mathrm{Sin}[c+d\,x]}{2\,d}+\frac{b^3\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}[c+d\,x]^2}{2\,d}$$

Result (type 3, 637 leaves):

$$\frac{3 a b^2 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^3}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-\frac{a \left(a^2-3 b^2\right) \operatorname{Cos}[c+d x]^4 (a+b \operatorname{Tan}[c+d x])^3}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-$$
$$\frac{3 \left(2 a^2 b-b^3\right) \operatorname{Cos}[c+d x]^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Tan}[c+d x])^3}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}+$$
$$\frac{3 \left(2 a^2 b-b^3\right) \operatorname{Cos}[c+d x]^3 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \operatorname{Tan}[c+d x])^3}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}+$$
$$\frac{b^3 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^3}{4 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}+$$
$$\frac{3 a b^2 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \operatorname{Tan}[c+d x])^3}{d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-$$
$$\frac{b^3 \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^3}{4 d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-$$
$$\frac{3 a b^2 \operatorname{Cos}[c+d x]^3 \operatorname{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \operatorname{Tan}[c+d x])^3}{d \left(\operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-\frac{b \left(3 a^2-b^2\right) \operatorname{Cos}[c+d x]^3 \operatorname{Sin}[c+d x] (a+b \operatorname{Tan}[c+d x])^3}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}$$

- **Problem 35: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Csc}[c+d x] (a+b \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 86 leaves, 8 steps) :

$$-\frac{a^3 \operatorname{ArcTanh}[\operatorname{Cos}[c+d x]]}{d}+\frac{3 a^2 b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d}-\frac{b^3 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 d}+\frac{3 a b^2 \operatorname{Sec}[c+d x]}{d}+\frac{b^3 \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{2 d}$$

Result (type 3, 634 leaves) :

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\left(-6\,a^2\,b+b^3\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\left(6\,a^2\,b-b^3\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}$$

Problem 37: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 141 leaves, 12 steps):

$$-\frac{a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{3\,a\,b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}+\frac{3\,a^2\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+$$

$$\frac{b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]}{d}-\frac{a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d}+\frac{3\,a\,b^2\,\text{Sec}[c+d\,x]}{d}+\frac{b^3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{2\,d}$$

Result (type 3, 897 leaves):

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{3\,a^2\,b\,\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{\left(-a^3-6\,a\,b^2\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{\left(-6\,a^2\,b-b^3\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{\left(a^3+6\,a\,b^2\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{\left(6\,a^2\,b+b^3\right)\,\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$
$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$
$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{3\,a^2\,b\,\text{Cos}[c+d\,x]^3\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}$$

- **Problem 39: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 229 leaves, 17 steps) :

$$-\frac{3\,a^3\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{8\,d}-\frac{9\,a\,b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}+\frac{3\,a^2\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+$$
$$\frac{3\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{2\,d}-\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]}{d}-\frac{3\,b^3\,\text{Csc}[c+d\,x]}{2\,d}-\frac{3\,a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{8\,d}-\frac{a^2\,b\,\text{Csc}[c+d\,x]^3}{d}-$$
$$\frac{a^3\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^3}{4\,d}+\frac{9\,a\,b^2\,\text{Sec}[c+d\,x]}{2\,d}-\frac{3\,a\,b^2\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]}{2\,d}+\frac{b^3\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^2}{2\,d}$$

Result (type 3, 1229 leaves) :

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{\left(-7\,a^2\,b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-2\,b^3\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{3\,\left(a^3+4\,a\,b^2\right)\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^3}{32\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{a^2\,b\,\text{Cos}[c+d\,x]^3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+b\,\text{Tan}[c+d\,x])^3}{64\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{3\,\left(a^3+12\,a\,b^2\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{3\,\left(2\,a^2\,b+b^3\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\left(a^3+12\,a\,b^2\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\left(2\,a^2\,b+b^3\right)\text{Cos}[c+d\,x]^3\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,\left(a^3+4\,a\,b^2\right)\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^3}{32\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{a^3\,\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^4\,(a+b\,\text{Tan}[c+d\,x])^3}{64\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{b^3\,\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{3\,a\,b^2\,\text{Cos}[c+d\,x]^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(-7\,a^2\,b\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-2\,b^3\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,(a+b\,\text{Tan}[c+d\,x])^3}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{a^2\,b\,\text{Cos}[c+d\,x]^3\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^3}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}$$

- **Problem 40: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]^6\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 167 leaves, 3 steps):

$$-\frac{a\left(a^2+6 b^2\right) \operatorname{Cot}[c+d x]}{d}-\frac{b\left(6 a^2+b^2\right) \operatorname{Cot}[c+d x]^2}{2 d}-\frac{a\left(2 a^2+3 b^2\right) \operatorname{Cot}[c+d x]^3}{3 d}-\frac{3 a^2 b \operatorname{Cot}[c+d x]^4}{4 d}-\frac{a^3 \operatorname{Cot}[c+d x]^5}{5 d}+\frac{b\left(3 a^2+2 b^2\right) \operatorname{Log}[\operatorname{Tan}[c+d x]]}{d}+\frac{3 a b^2 \operatorname{Tan}[c+d x]}{d}+\frac{b^3 \operatorname{Tan}[c+d x]^2}{2 d}$$

Result (type 3, 515 leaves):

$$-\frac{1}{960 d} \operatorname{Csc}[c+d x]^5 \operatorname{Sec}[c+d x]^2 \left(40 a \left(5 a^2+3 b^2\right) \operatorname{Cos}[c+d x]+8\left(a^3+15 a b^2\right) \operatorname{Cos}[3 (c+d x)]-24 a^3 \operatorname{Cos}[5 (c+d x)]-\right.$$
$$360 a b^2 \operatorname{Cos}[5 (c+d x)]+8 a^3 \operatorname{Cos}[7 (c+d x)]+120 a b^2 \operatorname{Cos}[7 (c+d x)]+360 a^2 b \operatorname{Sin}[c+d x]-240 b^3 \operatorname{Sin}[c+d x]+$$
$$225 a^2 b \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[c+d x]+150 b^3 \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[c+d x]-225 a^2 b \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]-$$
$$150 b^3 \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]+270 a^2 b \operatorname{Sin}[3 (c+d x)]+180 b^3 \operatorname{Sin}[3 (c+d x)]+45 a^2 b \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[3 (c+d x)]+$$
$$30 b^3 \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[3 (c+d x)]-45 a^2 b \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[3 (c+d x)]-30 b^3 \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[3 (c+d x)]-$$
$$90 a^2 b \operatorname{Sin}[5 (c+d x)]-60 b^3 \operatorname{Sin}[5 (c+d x)]-135 a^2 b \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[5 (c+d x)]-90 b^3 \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[5 (c+d x)]+$$
$$135 a^2 b \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[5 (c+d x)]+90 b^3 \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[5 (c+d x)]+45 a^2 b \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[7 (c+d x)]+$$
$$\left.30 b^3 \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[7 (c+d x)]-45 a^2 b \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[7 (c+d x)]-30 b^3 \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[7 (c+d x)]\right)$$

- **Problem 41: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Sin}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 275 leaves, 19 steps):

$$\frac{4 a^3 b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d}-\frac{10 a b^3 \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{d}-\frac{a^4 \operatorname{Cos}[c+d x]}{d}+\frac{12 a^2 b^2 \operatorname{Cos}[c+d x]}{d}-\frac{3 b^4 \operatorname{Cos}[c+d x]}{d}+\frac{a^4 \operatorname{Cos}[c+d x]^3}{3 d}-\frac{2 a^2 b^2 \operatorname{Cos}[c+d x]^3}{d}+\frac{b^4 \operatorname{Cos}[c+d x]^3}{3 d}+\frac{6 a^2 b^2 \operatorname{Sec}[c+d x]}{d}-\frac{3 b^4 \operatorname{Sec}[c+d x]}{d}+\frac{b^4 \operatorname{Sec}[c+d x]^3}{3 d}-\frac{4 a^3 b \operatorname{Sin}[c+d x]}{d}+\frac{10 a b^3 \operatorname{Sin}[c+d x]}{d}-\frac{4 a^3 b \operatorname{Sin}[c+d x]^3}{3 d}+\frac{10 a b^3 \operatorname{Sin}[c+d x]^3}{3 d}+\frac{2 a b^3 \operatorname{Sin}[c+d x]^3 \operatorname{Tan}[c+d x]^2}{d}$$

Result (type 3, 1017 leaves):

$$-\frac{b^2\left(-36a^2+17b^2\right)\operatorname{Cos}[c+dx]^4\,(a+b\operatorname{Tan}[c+dx])^4}{6d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}-$$

$$\frac{\left(3a^4-42a^2b^2+11b^4\right)\operatorname{Cos}[c+dx]^5\,(a+b\operatorname{Tan}[c+dx])^4}{4d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+\frac{\left(a^4-6a^2b^2+b^4\right)\operatorname{Cos}[c+dx]^4\operatorname{Cos}[3(c+dx)]\,(a+b\operatorname{Tan}[c+dx])^4}{12d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}-$$

$$\frac{2\left(2a^3b-5ab^3\right)\operatorname{Cos}[c+dx]^4\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right](a+b\operatorname{Tan}[c+dx])^4}{d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{2\left(2a^3b-5ab^3\right)\operatorname{Cos}[c+dx]^4\operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right](a+b\operatorname{Tan}[c+dx])^4}{d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{\left(12ab^3+b^4\right)\operatorname{Cos}[c+dx]^4\,(a+b\operatorname{Tan}[c+dx])^4}{12d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{b^4\operatorname{Cos}[c+dx]^4\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right](a+b\operatorname{Tan}[c+dx])^4}{6d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^3(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}-$$

$$\frac{b^4\operatorname{Cos}[c+dx]^4\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right](a+b\operatorname{Tan}[c+dx])^4}{6d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^3(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{\left(-12ab^3+b^4\right)\operatorname{Cos}[c+dx]^4\,(a+b\operatorname{Tan}[c+dx])^4}{12d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)^2(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{\operatorname{Cos}[c+dx]^4\left(36a^2b^2\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]-17b^4\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)(a+b\operatorname{Tan}[c+dx])^4}{6d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+$$

$$\frac{\operatorname{Cos}[c+dx]^4\left(-36a^2b^2\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]+17b^4\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)(a+b\operatorname{Tan}[c+dx])^4}{6d\left(\operatorname{Cos}\left[\frac{1}{2}(c+dx)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+dx)\right]\right)(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}-$$

$$\frac{ab\left(5a^2-9b^2\right)\operatorname{Cos}[c+dx]^4\operatorname{Sin}[c+dx]\,(a+b\operatorname{Tan}[c+dx])^4}{d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}+\frac{ab\left(a^2-b^2\right)\operatorname{Cos}[c+dx]^4\operatorname{Sin}[3(c+dx)]\,(a+b\operatorname{Tan}[c+dx])^4}{3d\,(a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx])^4}$$

- **Problem 43: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Sin}[c+dx]\,(a+b\operatorname{Tan}[c+dx])^4\,dx$$

Optimal (type 3, 180 leaves, 16 steps):

$$\frac{4\,a^3\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{6\,a\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{a^4\,\text{Cos}[c+d\,x]}{d}+\frac{6\,a^2\,b^2\,\text{Cos}[c+d\,x]}{d}-\frac{b^4\,\text{Cos}[c+d\,x]}{d}+$$
$$\frac{6\,a^2\,b^2\,\text{Sec}[c+d\,x]}{d}-\frac{2\,b^4\,\text{Sec}[c+d\,x]}{d}+\frac{b^4\,\text{Sec}[c+d\,x]^3}{3\,d}-\frac{4\,a^3\,b\,\text{Sin}[c+d\,x]}{d}+\frac{6\,a\,b^3\,\text{Sin}[c+d\,x]}{d}+\frac{2\,a\,b^3\,\text{Sin}[c+d\,x]\,\text{Tan}[c+d\,x]^2}{d}$$

Result (type 3, 875 leaves) :

$$-\frac{b^2\left(-36\,a^2+11\,b^2\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{\left(a^4-6\,a^2\,b^2+b^4\right)\text{Cos}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$
$$\frac{2\left(2\,a^3\,b-3\,a\,b^3\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right](a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{2\left(2\,a^3\,b-3\,a\,b^3\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right](a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{\left(12\,a\,b^3+b^4\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{12\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right](a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$
$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right](a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{\left(-12\,a\,b^3+b^4\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{12\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{\text{Cos}[c+d\,x]^4\left(36\,a^2\,b^2\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]-11\,b^4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{\text{Cos}[c+d\,x]^4\left(-36\,a^2\,b^2\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+11\,b^4\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$
$$\frac{4\,a\,b\left(a^2-b^2\right)\text{Cos}[c+d\,x]^4\,\text{Sin}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}$$

- **Problem 44: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^4\,dx$$

Optimal (type 3, 118 leaves, 10 steps) :

$$-\frac{a^4 \text{ArcTanh}[\text{Cos}[c+d x]]}{d}+\frac{4 a^3 b \text{ArcTanh}[\text{Sin}[c+d x]]}{d}-\frac{2 a b^3 \text{ArcTanh}[\text{Sin}[c+d x]]}{d}+\frac{6 a^2 b^2 \text{Sec}[c+d x]}{d}-\frac{b^4 \text{Sec}[c+d x]}{d}+\frac{b^4 \text{Sec}[c+d x]^3}{3 d}+\frac{2 a b^3 \text{Sec}[c+d x] \text{Tan}[c+d x]}{d}$$

Result (type 3, 870 leaves) :

$$\frac{b^2 \left(36 a^2-5 b^2\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{6 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-\frac{a^4 \text{Cos}[c+d x]^4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-$$

$$\frac{2 \left(2 a^3 b-a b^3\right) \text{Cos}[c+d x]^4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{a^4 \text{Cos}[c+d x]^4 \text{Log}\left[\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{2 \left(2 a^3 b-a b^3\right) \text{Cos}[c+d x]^4 \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right] (a+b \text{Tan}[c+d x])^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\left(12 a b^3+b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{12 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{b^4 \text{Cos}[c+d x]^4 \text{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^4}{6 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}-$$

$$\frac{b^4 \text{Cos}[c+d x]^4 \text{Sin}\left[\frac{1}{2} (c+d x)\right] (a+b \text{Tan}[c+d x])^4}{6 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\left(-12 a b^3+b^4\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^4}{12 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(36 a^2 b^2 \text{Sin}\left[\frac{1}{2} (c+d x)\right]-5 b^4 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{6 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}+$$

$$\frac{\text{Cos}[c+d x]^4 \left(-36 a^2 b^2 \text{Sin}\left[\frac{1}{2} (c+d x)\right]+5 b^4 \text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a+b \text{Tan}[c+d x])^4}{6 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}$$

Problem 46: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[c+d x]^3 (a+b \text{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 161 leaves, 14 steps) :

$$-\frac{a^4\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{2\,d}-\frac{6\,a^2\,b^2\,\text{ArcTanh}[\text{Cos}[c+d\,x]]}{d}+\frac{4\,a^3\,b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{2\,a\,b^3\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}-\frac{4\,a^3\,b\,\text{Csc}[c+d\,x]}{d}-\frac{a^4\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]}{2\,d}+\frac{6\,a^2\,b^2\,\text{Sec}[c+d\,x]}{d}+\frac{b^4\,\text{Sec}[c+d\,x]^3}{3\,d}+\frac{2\,a\,b^3\,\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 1128 leaves):

$$\frac{b^2\left(36\,a^2+b^2\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{2\,a^3\,b\,\text{Cos}[c+d\,x]^4\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$

$$\frac{a^4\,\text{Cos}[c+d\,x]^4\,\text{Csc}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^4}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+\frac{\left(-a^4-12\,a^2\,b^2\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$

$$\frac{2\left(2\,a^3\,b+a\,b^3\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\left(a^4+12\,a^2\,b^2\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{2\left(2\,a^3\,b+a\,b^3\right)\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{a^4\,\text{Cos}[c+d\,x]^4\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a+b\,\text{Tan}[c+d\,x])^4}{8\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+\frac{\left(12\,a\,b^3+b^4\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{12\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$

$$\frac{b^4\,\text{Cos}[c+d\,x]^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^3(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\left(-12\,a\,b^3+b^4\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{12\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(-36\,a^2\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]-b^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$

$$\frac{\text{Cos}[c+d\,x]^4\left(36\,a^2\,b^2\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]+b^4\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)(a+b\,\text{Tan}[c+d\,x])^4}{6\,d\left(\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{2\,a^3\,b\,\text{Cos}[c+d\,x]^4\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d x]^4 (a+b\,\mathrm{Tan}[c+d x])^4\, dx$$

Optimal (type 3, 137 leaves, 3 steps) :

$$-\frac{a^2 \left(a^2+6 b^2\right) \mathrm{Cot}[c+d x]}{d}-\frac{2 a^3 b\, \mathrm{Cot}[c+d x]^2}{d}-\frac{a^4 \mathrm{Cot}[c+d x]^3}{3 d}+\frac{4 a b \left(a^2+b^2\right) \mathrm{Log}[\mathrm{Tan}[c+d x]]}{d}+\frac{b^2 \left(6 a^2+b^2\right) \mathrm{Tan}[c+d x]}{d}+\frac{2 a b^3 \mathrm{Tan}[c+d x]^2}{d}+\frac{b^4 \mathrm{Tan}[c+d x]^3}{3 d}$$

Result (type 3, 487 leaves) :

$$\frac{2 a b^3 \mathrm{Cos}[c+d x]^2 (a+b\,\mathrm{Tan}[c+d x])^4}{d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}-\frac{2 \mathrm{Cos}[c+d x]^3 \left(a^4 \mathrm{Cos}[c+d x]+9 a^2 b^2 \mathrm{Cos}[c+d x]\right) \mathrm{Cot}[c+d x] (a+b\,\mathrm{Tan}[c+d x])^4}{3 d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}-\frac{2 a^3 b\, \mathrm{Cos}[c+d x]^2 \mathrm{Cot}[c+d x]^2 (a+b\,\mathrm{Tan}[c+d x])^4}{d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}-\frac{a^4 \mathrm{Cos}[c+d x]^2 \mathrm{Cot}[c+d x]^3 (a+b\,\mathrm{Tan}[c+d x])^4}{3 d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}-\frac{4 \left(a^3 b+a b^3\right) \mathrm{Cos}[c+d x]^4 \mathrm{Log}[\mathrm{Cos}[c+d x]] (a+b\,\mathrm{Tan}[c+d x])^4}{d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}+\frac{4 \left(a^3 b+a b^3\right) \mathrm{Cos}[c+d x]^4 \mathrm{Log}[\mathrm{Sin}[c+d x]] (a+b\,\mathrm{Tan}[c+d x])^4}{d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}+\frac{b^4 \mathrm{Cos}[c+d x] \mathrm{Sin}[c+d x] (a+b\,\mathrm{Tan}[c+d x])^4}{3 d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}+\frac{2 \mathrm{Cos}[c+d x]^3 \left(9 a^2 b^2 \mathrm{Sin}[c+d x]+b^4 \mathrm{Sin}[c+d x]\right) (a+b\,\mathrm{Tan}[c+d x])^4}{3 d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}$$

Problem 48: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Csc}[c+d x]^5 (a+b\,\mathrm{Tan}[c+d x])^4\, dx$$

Optimal (type 3, 274 leaves, 21 steps) :

$$-\frac{3 a^4 \mathrm{ArcTanh}[\mathrm{Cos}[c+d x]]}{8 d}-\frac{9 a^2 b^2 \mathrm{ArcTanh}[\mathrm{Cos}[c+d x]]}{d}-\frac{b^4 \mathrm{ArcTanh}[\mathrm{Cos}[c+d x]]}{d}+\frac{4 a^3 b\, \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{d}+\frac{6 a b^3 \mathrm{ArcTanh}[\mathrm{Sin}[c+d x]]}{d}-\frac{4 a^3 b\, \mathrm{Csc}[c+d x]}{d}-\frac{6 a b^3 \mathrm{Csc}[c+d x]}{d}-\frac{3 a^4 \mathrm{Cot}[c+d x] \mathrm{Csc}[c+d x]}{8 d}-\frac{4 a^3 b\, \mathrm{Csc}[c+d x]^3}{3 d}-\frac{a^4 \mathrm{Cot}[c+d x] \mathrm{Csc}[c+d x]^3}{4 d}+\frac{9 a^2 b^2 \mathrm{Sec}[c+d x]}{d}+\frac{b^4 \mathrm{Sec}[c+d x]}{d}-\frac{3 a^2 b^2 \mathrm{Csc}[c+d x]^2 \mathrm{Sec}[c+d x]}{d}+\frac{2 a b^3 \mathrm{Csc}[c+d x] \mathrm{Sec}[c+d x]^2}{d}+\frac{b^4 \mathrm{Sec}[c+d x]^3}{3 d}$$

Result (type 3, 1491 leaves) :

$$\frac{b^2 \left(36 a^2+7 b^2\right) \mathrm{Cos}[c+d x]^4 (a+b\,\mathrm{Tan}[c+d x])^4}{6 d (a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4}+$$

$$\frac{\left(-7 a^3 b \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-6 a b^3 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right) \operatorname{Cos}[c+d x]^4 \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right](a+b \operatorname{Tan}[c+d x])^4}{3 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-$$

$$\frac{3\left(a^4+8 a^2 b^2\right) \operatorname{Cos}[c+d x]^4 \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2(a+b \operatorname{Tan}[c+d x])^4}{32 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-\frac{a^3 b \operatorname{Cos}[c+d x]^4 \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right] \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^2(a+b \operatorname{Tan}[c+d x])^4}{6 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-$$

$$\frac{a^4 \operatorname{Cos}[c+d x]^4 \operatorname{Csc}\left[\frac{1}{2}(c+d x)\right]^4(a+b \operatorname{Tan}[c+d x])^4}{64 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+\frac{\left(-3 a^4-72 a^2 b^2-8 b^4\right) \operatorname{Cos}[c+d x]^4 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Tan}[c+d x])^4}{8 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-$$

$$\frac{2\left(2 a^3 b+3 a b^3\right) \operatorname{Cos}[c+d x]^4 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Tan}[c+d x])^4}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\left(3 a^4+72 a^2 b^2+8 b^4\right) \operatorname{Cos}[c+d x]^4 \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Tan}[c+d x])^4}{8 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{2\left(2 a^3 b+3 a b^3\right) \operatorname{Cos}[c+d x]^4 \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right](a+b \operatorname{Tan}[c+d x])^4}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{3\left(a^4+8 a^2 b^2\right) \operatorname{Cos}[c+d x]^4 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a+b \operatorname{Tan}[c+d x])^4}{32 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+\frac{a^4 \operatorname{Cos}[c+d x]^4 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^4(a+b \operatorname{Tan}[c+d x])^4}{64 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\left(12 a b^3+b^4\right) \operatorname{Cos}[c+d x]^4(a+b \operatorname{Tan}[c+d x])^4}{12 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{b^4 \operatorname{Cos}[c+d x]^4 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right](a+b \operatorname{Tan}[c+d x])^4}{6 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-$$

$$\frac{b^4 \operatorname{Cos}[c+d x]^4 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right](a+b \operatorname{Tan}[c+d x])^4}{6 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^3(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\left(-12 a b^3+b^4\right) \operatorname{Cos}[c+d x]^4(a+b \operatorname{Tan}[c+d x])^4}{12 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\operatorname{Cos}[c+d x]^4 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]\left(-7 a^3 b \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]-6 a b^3 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b \operatorname{Tan}[c+d x])^4}{3 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\operatorname{Cos}[c+d x]^4\left(-36 a^2 b^2 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]-7 b^4 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b \operatorname{Tan}[c+d x])^4}{6 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}+$$

$$\frac{\operatorname{Cos}[c+d x]^4\left(36 a^2 b^2 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]+7 b^4 \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a+b \operatorname{Tan}[c+d x])^4}{6 d\left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}-$$

$$\frac{a^3 b \cos[c+d x]^4 \sec\left[\frac{1}{2}(c+d x)\right]^2 \tan\left[\frac{1}{2}(c+d x)\right] (a+b \tan[c+d x])^4}{6 d (a \cos[c+d x]+b \sin[c+d x])^4}$$

- **Problem 49: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \csc[c+d x]^6 (a+b \tan[c+d x])^4 \, dx$$

Optimal (type 3, 194 leaves, 3 steps) :

$$-\frac{\left(a^4+12 a^2 b^2+b^4\right) \cot[c+d x]}{d}-\frac{2 a b \left(2 a^2+b^2\right) \cot[c+d x]^2}{d}-\frac{2 a^2 \left(a^2+3 b^2\right) \cot[c+d x]^3}{3 d}-\frac{a^3 b \cot[c+d x]^4}{d}-\frac{a^4 \cot[c+d x]^5}{5 d}+\frac{4 a b \left(a^2+2 b^2\right) \log[\tan[c+d x]]}{d}+\frac{2 b^2 \left(3 a^2+b^2\right) \tan[c+d x]}{d}+\frac{2 a b^3 \tan[c+d x]^2}{d}+\frac{b^4 \tan[c+d x]^3}{3 d}$$

Result (type 3, 632 leaves) :

$$\frac{2 a b^3 \cos[c+d x]^2 (a+b \tan[c+d x])^4}{d (a \cos[c+d x]+b \sin[c+d x])^4}+\left(\cos[c+d x]^3 \left(-8 a^4 \cos[c+d x]-150 a^2 b^2 \cos[c+d x]-15 b^4 \cos[c+d x]\right) \cot[c+d x] (a+b \tan[c+d x])^4\right) \Big/ \left(15 d (a \cos[c+d x]+b \sin[c+d x])^4\right)-\frac{2 a (a-i b) (a+i b) b \cos[c+d x]^2 \cot[c+d x]^2 (a+b \tan[c+d x])^4}{d (a \cos[c+d x]+b \sin[c+d x])^4}-\frac{2 \cos[c+d x] \left(2 a^4 \cos[c+d x]+15 a^2 b^2 \cos[c+d x]\right) \cot[c+d x]^3 (a+b \tan[c+d x])^4}{15 d (a \cos[c+d x]+b \sin[c+d x])^4}-\frac{a^3 b \cot[c+d x]^4 (a+b \tan[c+d x])^4}{d (a \cos[c+d x]+b \sin[c+d x])^4}-\frac{a^4 \cot[c+d x]^5 (a+b \tan[c+d x])^4}{5 d (a \cos[c+d x]+b \sin[c+d x])^4}-\frac{4 \left(a^3 b+2 a b^3\right) \cos[c+d x]^4 \log[\cos[c+d x]] (a+b \tan[c+d x])^4}{d (a \cos[c+d x]+b \sin[c+d x])^4}+\frac{4 \left(a^3 b+2 a b^3\right) \cos[c+d x]^4 \log[\sin[c+d x]] (a+b \tan[c+d x])^4}{d (a \cos[c+d x]+b \sin[c+d x])^4}+\frac{b^4 \cos[c+d x] \sin[c+d x] (a+b \tan[c+d x])^4}{3 d (a \cos[c+d x]+b \sin[c+d x])^4}+\frac{\cos[c+d x]^3 \left(18 a^2 b^2 \sin[c+d x]+5 b^4 \sin[c+d x]\right) (a+b \tan[c+d x])^4}{3 d (a \cos[c+d x]+b \sin[c+d x])^4}$$

- **Problem 52: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\sin[c+d x]^4}{a+b \tan[c+d x]} \, dx$$

Optimal (type 3, 158 leaves, 8 steps) :

$$\frac{a\left(3a^4-6a^2b^2-b^4\right)x}{8\left(a^2+b^2\right)^3}+\frac{a^4 b \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^3 d}+$$
$$\frac{\operatorname{Cos}[c+d x]^4 (b+a \operatorname{Tan}[c+d x])}{4\left(a^2+b^2\right) d}-\frac{\operatorname{Cos}[c+d x]^2\left(4 b\left(2 a^2+b^2\right)+a\left(5 a^2+b^2\right) \operatorname{Tan}[c+d x]\right)}{8\left(a^2+b^2\right)^2 d}$$

Result (type 3, 443 leaves) :

$$\frac{1}{32\left(a^2+b^2\right)^3 d}$$
$$\left(12 a^5 c+28 i a^4 b c-24 a^3 b^2 c-8 i a^2 b^3 c-4 a b^4 c-4 i b^5 c+12 a^5 d x+28 i a^4 b d x-24 a^3 b^2 d x-8 i a^2 b^3 d x-4 a b^4 d x-4 i b^5 d x+\right.$$
$$4 i b\left(-7 a^4+2 a^2 b^2+b^4\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]]-4\left(3 a^4 b+4 a^2 b^3+b^5\right) \operatorname{Cos}[2(c+d x)]+a^4 b \operatorname{Cos}[4(c+d x)]+2 a^2 b^3 \operatorname{Cos}[4(c+d x)]+$$
$$b^5 \operatorname{Cos}[4(c+d x)]+4 a^4 b \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+8 a^2 b^3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+$$
$$4 b^5 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+14 a^4 b \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]-$$
$$4 a^2 b^3 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]-2 b^5 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]-8 a^5 \operatorname{Sin}[2(c+d x)]-$$
$$\left.8 a^3 b^2 \operatorname{Sin}[2(c+d x)]+a^5 \operatorname{Sin}[4(c+d x)]+2 a^3 b^2 \operatorname{Sin}[4(c+d x)]+a b^4 \operatorname{Sin}[4(c+d x)]\right)$$

- **Problem 54: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Sin}[c+d x]^2}{a+b \operatorname{Tan}[c+d x]} \, dx$$

Optimal (type 3, 94 leaves, 7 steps) :

$$\frac{a\left(a^2-b^2\right)x}{2\left(a^2+b^2\right)^2}+\frac{a^2 b \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{\operatorname{Cos}[c+d x]^2 (b+a \operatorname{Tan}[c+d x])}{2\left(a^2+b^2\right) d}$$

Result (type 3, 245 leaves) :

$$\frac{1}{8\left(a^2+b^2\right)^2 d}\left(4 a^3 c+6 i a^2 b c-4 a b^2 c-2 i b^3 c+4 a^3 d x+6 i a^2 b d x-4 a b^2 d x-2 i b^3 d x+2 i b\left(-3 a^2+b^2\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]]-\right.$$
$$2 b\left(a^2+b^2\right) \operatorname{Cos}[2(c+d x)]+2 a^2 b \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+2 b^3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]+$$
$$\left.3 a^2 b \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]-b^3 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]-2 a^3 \operatorname{Sin}[2(c+d x)]-2 a b^2 \operatorname{Sin}[2(c+d x)]\right)$$

- **Problem 61: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Sin}[c+d x]^6}{(a+b \operatorname{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 297 leaves, 9 steps) :

$$\frac{\left(5 a^8-80 a^6 b^2+50 a^4 b^4+8 a^2 b^6+b^8\right) x}{16 \left(a^2+b^2\right)^5}+\frac{2 a^5 b \left(a^2-3 b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^5 d}-$$
$$\frac{a^6 b}{\left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])}-\frac{\text{Cos}[c+d x]^6 \left(2 a b+\left(a^2-b^2\right) \text{Tan}[c+d x]\right)}{6 \left(a^2+b^2\right)^2 d}+$$
$$\frac{\text{Cos}[c+d x]^4 \left(12 a b \left(3 a^2+b^2\right)+\left(13 a^4-18 a^2 b^2-7 b^4\right) \text{Tan}[c+d x]\right)}{24 \left(a^2+b^2\right)^3 d}-\frac{\text{Cos}[c+d x]^2 \left(48 a^5 b+\left(11 a^6-43 a^4 b^2-7 a^2 b^4-b^6\right) \text{Tan}[c+d x]\right)}{16 \left(a^2+b^2\right)^4 d}$$

Result (type 3, 1916 leaves) :

$$-\frac{1}{32 a \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}$$
$$\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \left(2 a^2 \text{Cos}[c+d x] \left((a+i b)^2 (c+d x)+a b \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+\right.$$
$$\left(-a^4+b^4+2 a^3 b (c+d x)+4 i a^2 b^2 (c+d x)-2 a b^3 (c+d x)+2 a^2 b^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right) \text{Sin}[c+d x]-$$
$$\left.4 i a^2 b \text{ArcTan}[\text{Tan}[c+d x]] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\right)-$$
$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-4 \left(a^4-6 a^2 b^2+b^4\right) (c+d x)+4 a b \left(a^2+b^2\right) \text{Cos}[2 (c+d x)]-\right.\right.$$
$$\left.\left.16 a b \left(a^2-b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+\frac{\left(a^2+b^2\right) \left(a^4-6 a^2 b^2+b^4\right) \text{Sin}[c+d x]}{a (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}+2 \left(a^4-b^4\right) \text{Sin}[2 (c+d x)]\right)\right)\Big/$$
$$\left(32 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])^2\right)+\frac{1}{32 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^2}\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2$$
$$\left(6 (a-b) (a+b) \left(a^2-4 a b+b^2\right) \left(a^2+4 a b+b^2\right) (c+d x)+12 i \left(3 a^5 b-10 a^3 b^3+3 a b^5\right) (c+d x)-\right.$$
$$12 i a b \left(3 a^4-10 a^2 b^2+3 b^4\right) \text{ArcTan}[\text{Tan}[c+d x]]+16 a b \left(-a^4+b^4\right) \text{Cos}[2 (c+d x)]+2 a b \left(a^2+b^2\right)^2 \text{Cos}[4 (c+d x)]+$$
$$6 a b \left(3 a^4-10 a^2 b^2+3 b^4\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+\frac{\left(-a^8+14 a^6 b^2-14 a^2 b^6+b^8\right) \text{Sin}[c+d x]}{a (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}-$$
$$\left.4 \left(a^2+b^2\right) \left(a^4-6 a^2 b^2+b^4\right) \text{Sin}[2 (c+d x)]+\left(a^2-b^2\right) \left(a^2+b^2\right)^2 \text{Sin}[4 (c+d x)]\right)-$$
$$\frac{1}{384 a \left(a^2+b^2\right)^5 d (a+b \text{Tan}[c+d x])^2}\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])$$
$$\left(30 a^9 b \text{Cos}[3 (c+d x)]-84 a^5 b^5 \text{Cos}[3 (c+d x)]-48 a^3 b^7 \text{Cos}[3 (c+d x)]+6 a b^9 \text{Cos}[3 (c+d x)]-\right.$$
$$6 a^9 b \text{Cos}[5 (c+d x)]-16 a^7 b^3 \text{Cos}[5 (c+d x)]-12 a^5 b^5 \text{Cos}[5 (c+d x)]+2 a b^9 \text{Cos}[5 (c+d x)]+$$
$$a^9 b \text{Cos}[7 (c+d x)]+4 a^7 b^3 \text{Cos}[7 (c+d x)]+6 a^5 b^5 \text{Cos}[7 (c+d x)]+4 a^3 b^7 \text{Cos}[7 (c+d x)]+a b^9 \text{Cos}[7 (c+d x)]-$$
$$3 a \text{Cos}[c+d x] \left(3 b^9+8 a^9 (c+d x)-224 a^7 b^2 (c+d x)+560 a^5 b^4 (c+d x)-224 a^3 b^6 (c+d x)+8 a b^8 (c+d x)+\right.$$
$$4 a^2 b^7 (-15-16 i (c+d x))+28 a^6 b^3 (3-16 i (c+d x))+14 a^4 b^5 (3+32 i (c+d x))+a^8 b (-21+64 i (c+d x))+$$
$$\left.32 a^2 b \left(a^6-7 a^4 b^2+7 a^2 b^4-b^6\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+12 a^{10} \text{Sin}[c+d x]-261 a^8 b^2 \text{Sin}[c+d x]+$$

$252\, a^6 b^4 \text{Sin}[c+d x]+378\, a^4 b^6 \text{Sin}[c+d x]-144\, a^2 b^8 \text{Sin}[c+d x]+3\, b^{10} \text{Sin}[c+d x]-24\, a^9 b\, (c+d x) \text{Sin}[c+d x]-$
$192\, i\, a^8 b^2\, (c+d x) \text{Sin}[c+d x]+672\, a^7 b^3\, (c+d x) \text{Sin}[c+d x]+1344\, i\, a^6 b^4\, (c+d x) \text{Sin}[c+d x]-1680\, a^5 b^5\, (c+d x) \text{Sin}[c+d x]-$
$1344\, i\, a^4 b^6\, (c+d x) \text{Sin}[c+d x]+672\, a^3 b^7\, (c+d x) \text{Sin}[c+d x]+192\, i\, a^2 b^8\, (c+d x) \text{Sin}[c+d x]-24\, a\, b^9\, (c+d x) \text{Sin}[c+d x]-$
$96\, a^8 b^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]+672\, a^6 b^4 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]-$
$672\, a^4 b^6 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]+96\, a^2 b^8 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]+$
$192\, i\, a^2 b\, \left(a^6-7 a^4 b^2+7 a^2 b^4-b^6\right) \text{ArcTan}[\text{Tan}[c+d x]]\, (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])+6\, a^{10} \text{Sin}[3\, (c+d x)]-$
$48\, a^8 b^2 \text{Sin}[3\, (c+d x)]-84\, a^6 b^4 \text{Sin}[3\, (c+d x)]+30\, a^2 b^8 \text{Sin}[3\, (c+d x)]-2\, a^{10} \text{Sin}[5\, (c+d x)]+$
$12\, a^6 b^4 \text{Sin}[5\, (c+d x)]+16\, a^4 b^6 \text{Sin}[5\, (c+d x)]+6\, a^2 b^8 \text{Sin}[5\, (c+d x)]+a^{10} \text{Sin}[7\, (c+d x)]+$
$4\, a^8 b^2 \text{Sin}[7\, (c+d x)]+6\, a^6 b^4 \text{Sin}[7\, (c+d x)]+4\, a^4 b^6 \text{Sin}[7\, (c+d x)]+a^2 b^8 \text{Sin}[7\, (c+d x)]\Big)+$
$$\frac{5\, \text{Sec}[c+d x]\, (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\, \text{Tan}[c+d x]}{128\, a\, d\, (a+b \text{Tan}[c+d x])^2}$$

- **Problem 62: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sin}[c+d x]^4}{(a+b \text{Tan}[c+d x])^2}\, dx$$

Optimal (type 3, 217 leaves, 8 steps):

$$\frac{\left(3 a^6-33 a^4 b^2+13 a^2 b^4+b^6\right) x}{8 \left(a^2+b^2\right)^4}+\frac{2 a^3 b \left(a^2-2 b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^4 d}-\frac{a^4 b}{\left(a^2+b^2\right)^3 d\, (a+b \text{Tan}[c+d x])}+$$
$$\frac{\text{Cos}[c+d x]^4 \left(2 a b+\left(a^2-b^2\right) \text{Tan}[c+d x]\right)}{4 \left(a^2+b^2\right)^2 d}-\frac{\text{Cos}[c+d x]^2 \left(16 a^3 b+\left(5 a^4-12 a^2 b^2-b^4\right) \text{Tan}[c+d x]\right)}{8 \left(a^2+b^2\right)^3 d}$$

Result (type 3, 823 leaves):

$$-\frac{1}{32\,a\,\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d\,x])^2}$$

$$\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\Big(2\,a^2\,\text{Cos}[c+d\,x]\,\Big((a+\mathrm{i}\,b)^2\,(c+d\,x)+a\,b\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\Big)+$$

$$\Big(-a^4+b^4+2\,a^3\,b\,(c+d\,x)+4\,\mathrm{i}\,a^2\,b^2\,(c+d\,x)-2\,a\,b^3\,(c+d\,x)+2\,a^2\,b^2\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\Big)\,\text{Sin}[c+d\,x]-$$

$$4\,\mathrm{i}\,a^2\,b\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\Big)-$$

$$\Bigg(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\Bigg(-4\,\left(a^4-6\,a^2\,b^2+b^4\right)\,(c+d\,x)+4\,a\,b\,\left(a^2+b^2\right)\,\text{Cos}[2\,(c+d\,x)]-$$

$$16\,a\,b\,\left(a^2-b^2\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]+\frac{\left(a^2+b^2\right)\,\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Sin}[c+d\,x]}{a\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}+2\,\left(a^4-b^4\right)\,\text{Sin}[2\,(c+d\,x)]\Bigg)\Bigg)\Bigg/$$

$$\left(16\,\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d\,x])^2\right)+\frac{1}{32\,\left(a^2+b^2\right)^4 d\,(a+b\,\text{Tan}[c+d\,x])^2}\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$

$$\Bigg(6\,(a-b)\,(a+b)\,\left(a^2-4\,a\,b+b^2\right)\,\left(a^2+4\,a\,b+b^2\right)\,(c+d\,x)+12\,\mathrm{i}\,\left(3\,a^5\,b-10\,a^3\,b^3+3\,a\,b^5\right)\,(c+d\,x)-$$

$$12\,\mathrm{i}\,a\,b\,\left(3\,a^4-10\,a^2\,b^2+3\,b^4\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]+16\,a\,b\,\left(-a^4+b^4\right)\,\text{Cos}[2\,(c+d\,x)]+2\,a\,b\,\left(a^2+b^2\right)^2\,\text{Cos}[4\,(c+d\,x)]+$$

$$6\,a\,b\,\left(3\,a^4-10\,a^2\,b^2+3\,b^4\right)\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]+\frac{\left(-a^8+14\,a^6\,b^2-14\,a^2\,b^6+b^8\right)\,\text{Sin}[c+d\,x]}{a\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}-$$

$$4\,\left(a^2+b^2\right)\,\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Sin}[2\,(c+d\,x)]+\left(a^2-b^2\right)\,\left(a^2+b^2\right)^2\,\text{Sin}[4\,(c+d\,x)]\Bigg)+\frac{\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]}{16\,a\,d\,(a+b\,\text{Tan}[c+d\,x])^2}$$

- **Problem 66: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Csc}[c+d\,x]^6}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 219 leaves, 3 steps):

$$-\frac{\left(a^2+b^2\right)\,\left(a^2+5\,b^2\right)\,\text{Cot}[c+d\,x]}{a^6\,d}+\frac{2\,b\,\left(a^2+b^2\right)\,\text{Cot}[c+d\,x]^2}{a^5\,d}-\frac{\left(2\,a^2+3\,b^2\right)\,\text{Cot}[c+d\,x]^3}{3\,a^4\,d}+\frac{b\,\text{Cot}[c+d\,x]^4}{2\,a^3\,d}-\frac{\text{Cot}[c+d\,x]^5}{5\,a^2\,d}-$$

$$\frac{2\,b\,\left(a^2+b^2\right)\,\left(a^2+3\,b^2\right)\,\text{Log}[\text{Tan}[c+d\,x]]}{a^7\,d}+\frac{2\,b\,\left(a^2+b^2\right)\,\left(a^2+3\,b^2\right)\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{a^7\,d}-\frac{b\,\left(a^2+b^2\right)^2}{a^6\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 589 leaves):

$$-\frac{\text{Csc}[c+d x]^5 \text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{5 a^2 d (a+b \text{Tan}[c+d x])^2}+$$
$$\left(\left(-8 a^4 \text{Cos}[c+d x]-75 a^2 b^2 \text{Cos}[c+d x]-75 b^4 \text{Cos}[c+d x]\right) \text{Csc}[c+d x] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right) \Big/$$
$$\left(15 a^6 d (a+b \text{Tan}[c+d x])^2\right)+\frac{b \left(a^2+2 b^2\right) \text{Csc}[c+d x]^2 \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{a^5 d (a+b \text{Tan}[c+d x])^2}+$$
$$\frac{\left(-4 a^2 \text{Cos}[c+d x]-15 b^2 \text{Cos}[c+d x]\right) \text{Csc}[c+d x]^3 \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{15 a^4 d (a+b \text{Tan}[c+d x])^2}+$$
$$\frac{b \text{Csc}[c+d x]^4 \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{2 a^3 d (a+b \text{Tan}[c+d x])^2}-$$
$$\frac{2 \left(a^4 b+4 a^2 b^3+3 b^5\right) \text{Log}[\text{Sin}[c+d x]] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{a^7 d (a+b \text{Tan}[c+d x])^2}+$$
$$\frac{2 \left(a^4 b+4 a^2 b^3+3 b^5\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{a^7 d (a+b \text{Tan}[c+d x])^2}+$$
$$\frac{\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \left(a^4 b^2 \text{Sin}[c+d x]+2 a^2 b^4 \text{Sin}[c+d x]+b^6 \text{Sin}[c+d x]\right)}{a^7 d (a+b \text{Tan}[c+d x])^2}$$

Problem 67: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Sin}[c+d x]^6}{(a+b \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 382 leaves, 9 steps):

$$\frac{a \left(5 a^8-180 a^6 b^2+390 a^4 b^4-68 a^2 b^6-3 b^8\right) x}{16 \left(a^2+b^2\right)^6}+\frac{a^4 b \left(3 a^4-22 a^2 b^2+15 b^4\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^6 d}-$$
$$\frac{a^6 b}{2 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^2}-\frac{2 a^5 b \left(a^2-3 b^2\right)}{\left(a^2+b^2\right)^5 d (a+b \text{Tan}[c+d x])}-\frac{\text{Cos}[c+d x]^6 \left(b \left(3 a^2-b^2\right)+a \left(a^2-3 b^2\right) \text{Tan}[c+d x]\right)}{6 \left(a^2+b^2\right)^3 d}+$$
$$\frac{\text{Cos}[c+d x]^4 \left(6 b \left(9 a^4-4 a^2 b^2-b^4\right)+a \left(13 a^4-62 a^2 b^2-3 b^4\right) \text{Tan}[c+d x]\right)}{24 \left(a^2+b^2\right)^4 d}-$$
$$\frac{a \text{Cos}[c+d x]^2 \left(24 a^3 b \left(3 a^2-5 b^2\right)+\left(11 a^6-119 a^4 b^2+65 a^2 b^4+3 b^6\right) \text{Tan}[c+d x]\right)}{16 \left(a^2+b^2\right)^5 d}$$

Result (type 3, 3335 leaves):

$$\frac{1}{32 d (a+b \text{Tan}[c+d x])^3}$$

$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(-\frac{4\,a\,\left(a^2-3\,b^2\right)\,(c+d\,x)}{\left(a^2+b^2\right)^3}+\frac{4\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^3}-\right.$$

$$\left.\frac{b\,\left(3\,a^2-b^2\right)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{3\,\left(a^2-3\,b^2\right)\,\mathrm{Sin}[c+d\,x]}{\left(a^2+b^2\right)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$

$$\frac{3\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(-b\,\mathrm{Cos}[2\,(c+d\,x)]+a\,\mathrm{Sin}[2\,(c+d\,x)])}{256\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\frac{1}{512\,\left(a^2+b^2\right)^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,3\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\left(-42\,a^8\,b+280\,a^6\,b^3-28\,a^4\,b^5-296\,a^2\,b^7+54\,b^9+24\,a^9\,(c+d\,x)+168\,\mathrm{i}\,a^8\,b\,(c+d\,x)-480\,a^7\,b^2\,(c+d\,x)-672\,\mathrm{i}\,a^6\,b^3\,(c+d\,x)+\right.$$

$$336\,a^5\,b^4\,(c+d\,x)-336\,\mathrm{i}\,a^4\,b^5\,(c+d\,x)+672\,a^3\,b^6\,(c+d\,x)+480\,\mathrm{i}\,a^2\,b^7\,(c+d\,x)-168\,a\,b^8\,(c+d\,x)-24\,\mathrm{i}\,b^9\,(c+d\,x)-$$

$$12\,a^8\,b\,\mathrm{Cos}[4\,(c+d\,x)]-32\,a^6\,b^3\,\mathrm{Cos}[4\,(c+d\,x)]-24\,a^4\,b^5\,\mathrm{Cos}[4\,(c+d\,x)]+4\,b^9\,\mathrm{Cos}[4\,(c+d\,x)]+a^8\,b\,\mathrm{Cos}[6\,(c+d\,x)]+$$

$$4\,a^6\,b^3\,\mathrm{Cos}[6\,(c+d\,x)]+6\,a^4\,b^5\,\mathrm{Cos}[6\,(c+d\,x)]+4\,a^2\,b^7\,\mathrm{Cos}[6\,(c+d\,x)]+b^9\,\mathrm{Cos}[6\,(c+d\,x)]+84\,a^8\,b\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-$$

$$336\,a^6\,b^3\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-168\,a^4\,b^5\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+$$

$$240\,a^2\,b^7\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-12\,b^9\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+$$

$$4\,\mathrm{Cos}[2\,(c+d\,x)]\,\left(6\,a^9\,(c+d\,x)-132\,a^7\,b^2\,(c+d\,x)+336\,a^5\,b^4\,(c+d\,x)-252\,a^3\,b^6\,(c+d\,x)+42\,a\,b^8\,(c+d\,x)+\right.$$

$$3\,b^9\,(-5+2\,\mathrm{i}\,(c+d\,x))+21\,a^4\,b^5\,(3+16\,\mathrm{i}\,(c+d\,x))+7\,a^6\,b^3\,(-5-36\,\mathrm{i}\,(c+d\,x))+a^2\,b^7\,(71-132\,\mathrm{i}\,(c+d\,x))+$$

$$\left.6\,\mathrm{i}\,a^8\,b\,(2\,\mathrm{i}+7\,(c+d\,x))+3\,b\,\left(7\,a^8-42\,a^6\,b^2+56\,a^4\,b^4-22\,a^2\,b^6+b^8\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)+$$

$$48\,\mathrm{i}\,b\,\left(-7\,a^6+35\,a^4\,b^2-21\,a^2\,b^4+b^6\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2-18\,a^9\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$228\,a^7\,b^2\,\mathrm{Sin}[2\,(c+d\,x)]+56\,a^5\,b^4\,\mathrm{Sin}[2\,(c+d\,x)]-196\,a^3\,b^6\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$6\,a\,b^8\,\mathrm{Sin}[2\,(c+d\,x)]+48\,a^8\,b\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+336\,\mathrm{i}\,a^7\,b^2\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$1008\,a^6\,b^3\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-1680\,\mathrm{i}\,a^5\,b^4\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+1680\,a^4\,b^5\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$1008\,\mathrm{i}\,a^3\,b^6\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-336\,a^2\,b^7\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-48\,\mathrm{i}\,a\,b^8\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$168\,a^7\,b^2\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-840\,a^5\,b^4\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$504\,a^3\,b^6\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-24\,a\,b^8\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$4\,a^9\,\mathrm{Sin}[4\,(c+d\,x)]+24\,a^5\,b^4\,\mathrm{Sin}[4\,(c+d\,x)]+32\,a^3\,b^6\,\mathrm{Sin}[4\,(c+d\,x)]+12\,a\,b^8\,\mathrm{Sin}[4\,(c+d\,x)]+$$

$$\left.a^9\,\mathrm{Sin}[6\,(c+d\,x)]+4\,a^7\,b^2\,\mathrm{Sin}[6\,(c+d\,x)]+6\,a^5\,b^4\,\mathrm{Sin}[6\,(c+d\,x)]+4\,a^3\,b^6\,\mathrm{Sin}[6\,(c+d\,x)]+a\,b^8\,\mathrm{Sin}[6\,(c+d\,x)]\right)-$$

$$\frac{1}{1536\,\left(a^2+b^2\right)^6\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\left(324\,a^{10}\,b-3420\,a^8\,b^3+3816\,a^6\,b^5+4104\,a^4\,b^7-3180\,a^2\,b^9+276\,b^{11}-120\,a^{11}\,(c+d\,x)-1080\,\mathrm{i}\,a^{10}\,b\,(c+d\,x)+4200\,a^9\,b^2\,(c+d\,x)+\right.$$

$$9000\,\mathrm{i}\,a^8\,b^3\,(c+d\,x)-10\,800\,a^7\,b^4\,(c+d\,x)-5040\,\mathrm{i}\,a^6\,b^5\,(c+d\,x)-5040\,a^5\,b^6\,(c+d\,x)-10\,800\,\mathrm{i}\,a^4\,b^7\,(c+d\,x)+9000\,a^3\,b^8\,(c+d\,x)+$$

$$4200\,\mathrm{i}\,a^2\,b^9\,(c+d\,x)-1080\,a\,b^{10}\,(c+d\,x)-120\,\mathrm{i}\,b^{11}\,(c+d\,x)+100\,a^{10}\,b\,\mathrm{Cos}[4\,(c+d\,x)]+100\,a^8\,b^3\,\mathrm{Cos}[4\,(c+d\,x)]-$$

$$280\,a^6\,b^5\,\mathrm{Cos}[4\,(c+d\,x)]-440\,a^4\,b^7\,\mathrm{Cos}[4\,(c+d\,x)]-140\,a^2\,b^9\,\mathrm{Cos}[4\,(c+d\,x)]+20\,b^{11}\,\mathrm{Cos}[4\,(c+d\,x)]-15\,a^{10}\,b\,\mathrm{Cos}[6\,(c+d\,x)]-$$

$$55\,a^8\,b^3\,\mathrm{Cos}[6\,(c+d\,x)]-70\,a^6\,b^5\,\mathrm{Cos}[6\,(c+d\,x)]-30\,a^4\,b^7\,\mathrm{Cos}[6\,(c+d\,x)]+5\,a^2\,b^9\,\mathrm{Cos}[6\,(c+d\,x)]+5\,b^{11}\,\mathrm{Cos}[6\,(c+d\,x)]+$$

$$2\,a^{10}\,b\,\mathrm{Cos}[8\,(c+d\,x)]+10\,a^8\,b^3\,\mathrm{Cos}[8\,(c+d\,x)]+20\,a^6\,b^5\,\mathrm{Cos}[8\,(c+d\,x)]+20\,a^4\,b^7\,\mathrm{Cos}[8\,(c+d\,x)]+10\,a^2\,b^9\,\mathrm{Cos}[8\,(c+d\,x)]+$$

$$2\,b^{11}\,\mathrm{Cos}[8\,(c+d\,x)]-540\,a^{10}\,b\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+4500\,a^8\,b^3\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-$$

$$2520\,a^6\,b^5\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-5400\,a^4\,b^7\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+$$

$$2100\,a^2\,b^9\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-60\,b^{11}\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-6\,\mathrm{Cos}[2\,(c+d\,x)]\,\left(20\,a^{11}\,(c+d\,x)-\right.$$

$740\, a^9 b^2 (c+d x) + 3240\, a^7 b^4 (c+d x) - 4200\, a^5 b^6 (c+d x) + 1860\, a^3 b^8 (c+d x) - 180\, a\, b^{10} (c+d x) + b^{11} (51 - 20\, i\, (c+d x)) +$
$3\, a^{10} b\, (-23 + 60\, i\, (c+d x)) + 18\, a^4 b^7 (7 - 180\, i\, (c+d x)) + 3\, a^8 b^3 (21 - 620\, i\, (c+d x)) + 6\, a^6 b^5 (141 + 700\, i\, (c+d x)) +$
$a^2 b^9 (-537 + 740\, i\, (c+d x)) - 10\, b \left(-9\, a^{10} + 93\, a^8 b^2 - 210\, a^6 b^4 + 162\, a^4 b^6 - 37\, a^2 b^8 + b^{10}\right) \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right]\Big) +$
$240\, i\, b \left(9\, a^8 - 84\, a^6 b^2 + 126\, a^4 b^4 - 36\, a^2 b^6 + b^8\right) \text{ArcTan}[\text{Tan}[c+d x]]\, (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2 + 90\, a^{11} \text{Sin}[2 (c+d x)] -$
$2142\, a^9 b^2 \text{Sin}[2 (c+d x)] + 2052\, a^7 b^4 \text{Sin}[2 (c+d x)] + 3780\, a^5 b^6 \text{Sin}[2 (c+d x)] - 702\, a^3 b^8 \text{Sin}[2 (c+d x)] - 198\, a\, b^{10} \text{Sin}[2 (c+d x)] -$
$240\, a^{10} b\, (c+d x) \text{Sin}[2 (c+d x)] - 2160\, i\, a^9 b^2 (c+d x) \text{Sin}[2 (c+d x)] + 8640\, a^8 b^3 (c+d x) \text{Sin}[2 (c+d x)] +$
$20160\, i\, a^7 b^4 (c+d x) \text{Sin}[2 (c+d x)] - 30240\, a^6 b^5 (c+d x) \text{Sin}[2 (c+d x)] - 30240\, i\, a^5 b^6 (c+d x) \text{Sin}[2 (c+d x)] +$
$20160\, a^4 b^7 (c+d x) \text{Sin}[2 (c+d x)] + 8640\, i\, a^3 b^8 (c+d x) \text{Sin}[2 (c+d x)] - 2160\, a^2 b^9 (c+d x) \text{Sin}[2 (c+d x)] -$
$240\, i\, a\, b^{10} (c+d x) \text{Sin}[2 (c+d x)] - 1080\, a^9 b^2 \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right] \text{Sin}[2 (c+d x)] +$
$10080\, a^7 b^4 \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right] \text{Sin}[2 (c+d x)] - 15120\, a^5 b^6 \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right] \text{Sin}[2 (c+d x)] +$
$4320\, a^3 b^8 \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right] \text{Sin}[2 (c+d x)] - 120\, a\, b^{10} \text{Log}\left[(a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^2\right] \text{Sin}[2 (c+d x)] +$
$20\, a^{11} \text{Sin}[4 (c+d x)] - 140\, a^9 b^2 \text{Sin}[4 (c+d x)] - 440\, a^7 b^4 \text{Sin}[4 (c+d x)] - 280\, a^5 b^6 \text{Sin}[4 (c+d x)] +$
$100\, a^3 b^8 \text{Sin}[4 (c+d x)] + 100\, a\, b^{10} \text{Sin}[4 (c+d x)] - 5\, a^{11} \text{Sin}[6 (c+d x)] - 5\, a^9 b^2 \text{Sin}[6 (c+d x)] + 30\, a^7 b^4 \text{Sin}[6 (c+d x)] +$
$70\, a^5 b^6 \text{Sin}[6 (c+d x)] + 55\, a^3 b^8 \text{Sin}[6 (c+d x)] + 15\, a\, b^{10} \text{Sin}[6 (c+d x)] + 2\, a^{11} \text{Sin}[8 (c+d x)] + 10\, a^9 b^2 \text{Sin}[8 (c+d x)] +$
$20\, a^7 b^4 \text{Sin}[8 (c+d x)] + 20\, a^5 b^6 \text{Sin}[8 (c+d x)] + 10\, a^3 b^8 \text{Sin}[8 (c+d x)] + 2\, a\, b^{10} \text{Sin}[8 (c+d x)]\Big)$

- **Problem 68: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sin}[c+d x]^4}{(a + b \text{Tan}[c+d x])^3}\, dx$$

Optimal (type 3, 285 leaves, 8 steps):

$$\frac{3\, a \left(a^6 - 25\, a^4 b^2 + 35\, a^2 b^4 - 3\, b^6\right) x}{8 \left(a^2 + b^2\right)^5} + \frac{3\, a^2 b \left(a^4 - 5\, a^2 b^2 + 2\, b^4\right) \text{Log}[a \text{Cos}[c+d x] + b \text{Sin}[c+d x]]}{\left(a^2 + b^2\right)^5 d} -$$
$$\frac{a^4 b}{2 \left(a^2 + b^2\right)^3 d\, (a + b \text{Tan}[c+d x])^2} - \frac{2\, a^3 b \left(a^2 - 2\, b^2\right)}{\left(a^2 + b^2\right)^4 d\, (a + b \text{Tan}[c+d x])} +$$
$$\frac{\text{Cos}[c+d x]^4 \left(b \left(3\, a^2 - b^2\right) + a \left(a^2 - 3\, b^2\right) \text{Tan}[c+d x]\right)}{4 \left(a^2 + b^2\right)^3 d} - \frac{a \text{Cos}[c+d x]^2 \left(24\, a\, b \left(a^2 - b^2\right) + \left(5\, a^4 - 34\, a^2 b^2 + 9\, b^4\right) \text{Tan}[c+d x]\right)}{8 \left(a^2 + b^2\right)^4 d}$$

Result (type 3, 1894 leaves):

$$-\frac{1}{64\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$

$$3\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{4\,a\,\left(a^2-3\,b^2\right)\,(c+d\,x)}{\left(a^2+b^2\right)^3}-\frac{4\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^3}+\right.$$

$$\left.\frac{b\,\left(3\,a^2-b^2\right)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{3\,\left(a^2-3\,b^2\right)\,\mathrm{Sin}[c+d\,x]}{\left(a^2+b^2\right)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$

$$\frac{3\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(-b\,\mathrm{Cos}[2\,(c+d\,x)]+a\,\mathrm{Sin}[2\,(c+d\,x)])}{128\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\frac{1}{128\,\left(a^2+b^2\right)^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(24\,a\,\left(a^4-10\,a^2\,b^2+5\,b^4\right)\,(c+d\,x)+24\,\mathrm{i}\,\left(5\,a^4\,b-10\,a^2\,b^3+b^5\right)\,(c+d\,x)-24\,\mathrm{i}\,b\,\left(5\,a^4-10\,a^2\,b^2+b^4\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]+\right.$$

$$8\,b\,\left(-3\,a^2+b^2\right)\,\left(a^2+b^2\right)\,\mathrm{Cos}[2\,(c+d\,x)]+12\,b\,\left(5\,a^4-10\,a^2\,b^2+b^4\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+$$

$$\left.\frac{b\,\left(a^2+b^2\right)\,\left(5\,a^4-10\,a^2\,b^2+b^4\right)}{(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{10\,\left(a^2+b^2\right)\,\left(a^4-10\,a^2\,b^2+5\,b^4\right)\,\mathrm{Sin}[c+d\,x]}{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}-8\,a\,\left(a^2-3\,b^2\right)\,\left(a^2+b^2\right)\,\mathrm{Sin}[2\,(c+d\,x)]\right)+$$

$$\frac{1}{128\,\left(a^2+b^2\right)^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\left(-42\,a^8\,b+280\,a^6\,b^3-28\,a^4\,b^5-296\,a^2\,b^7+\right.$$

$$54\,b^9+24\,a^9\,(c+d\,x)+168\,\mathrm{i}\,a^8\,b\,(c+d\,x)-480\,a^7\,b^2\,(c+d\,x)-672\,\mathrm{i}\,a^6\,b^3\,(c+d\,x)+336\,a^5\,b^4\,(c+d\,x)-336\,\mathrm{i}\,a^4\,b^5\,(c+d\,x)+$$

$$672\,a^3\,b^6\,(c+d\,x)+480\,\mathrm{i}\,a^2\,b^7\,(c+d\,x)-168\,a\,b^8\,(c+d\,x)-24\,\mathrm{i}\,b^9\,(c+d\,x)-12\,a^8\,b\,\mathrm{Cos}[4\,(c+d\,x)]-32\,a^6\,b^3\,\mathrm{Cos}[4\,(c+d\,x)]-$$

$$24\,a^4\,b^5\,\mathrm{Cos}[4\,(c+d\,x)]+4\,b^9\,\mathrm{Cos}[4\,(c+d\,x)]+a^8\,b\,\mathrm{Cos}[6\,(c+d\,x)]+4\,a^6\,b^3\,\mathrm{Cos}[6\,(c+d\,x)]+6\,a^4\,b^5\,\mathrm{Cos}[6\,(c+d\,x)]+$$

$$4\,a^2\,b^7\,\mathrm{Cos}[6\,(c+d\,x)]+b^9\,\mathrm{Cos}[6\,(c+d\,x)]+84\,a^8\,b\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-336\,a^6\,b^3\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-$$

$$168\,a^4\,b^5\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+240\,a^2\,b^7\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]-$$

$$12\,b^9\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]+4\,\mathrm{Cos}[2\,(c+d\,x)]\,\left(6\,a^9\,(c+d\,x)-132\,a^7\,b^2\,(c+d\,x)+336\,a^5\,b^4\,(c+d\,x)-252\,a^3\,b^6\,(c+d\,x)+\right.$$

$$42\,a\,b^8\,(c+d\,x)+3\,b^9\,(-5+2\,\mathrm{i}\,(c+d\,x))+21\,a^4\,b^5\,(3+16\,\mathrm{i}\,(c+d\,x))+7\,a^6\,b^3\,(-5-36\,\mathrm{i}\,(c+d\,x))+a^2\,b^7\,(71-132\,\mathrm{i}\,(c+d\,x))+$$

$$\left.6\,\mathrm{i}\,a^8\,b\,(2\,\mathrm{i}+7\,(c+d\,x))+3\,b\,\left(7\,a^8-42\,a^6\,b^2+56\,a^4\,b^4-22\,a^2\,b^6+b^8\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)+$$

$$48\,\mathrm{i}\,b\,\left(-7\,a^6+35\,a^4\,b^2-21\,a^2\,b^4+b^6\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2-18\,a^9\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$228\,a^7\,b^2\,\mathrm{Sin}[2\,(c+d\,x)]+56\,a^5\,b^4\,\mathrm{Sin}[2\,(c+d\,x)]-196\,a^3\,b^6\,\mathrm{Sin}[2\,(c+d\,x)]-6\,a\,b^8\,\mathrm{Sin}[2\,(c+d\,x)]+$$

$$48\,a^8\,b\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+336\,\mathrm{i}\,a^7\,b^2\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-1008\,a^6\,b^3\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$1680\,\mathrm{i}\,a^5\,b^4\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+1680\,a^4\,b^5\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+1008\,\mathrm{i}\,a^3\,b^6\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$336\,a^2\,b^7\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]-48\,\mathrm{i}\,a\,b^8\,(c+d\,x)\,\mathrm{Sin}[2\,(c+d\,x)]+168\,a^7\,b^2\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$840\,a^5\,b^4\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]+504\,a^3\,b^6\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-$$

$$24\,a\,b^8\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sin}[2\,(c+d\,x)]-4\,a^9\,\mathrm{Sin}[4\,(c+d\,x)]+24\,a^5\,b^4\,\mathrm{Sin}[4\,(c+d\,x)]+32\,a^3\,b^6\,\mathrm{Sin}[4\,(c+d\,x)]+$$

$$\left.12\,a\,b^8\,\mathrm{Sin}[4\,(c+d\,x)]+a^9\,\mathrm{Sin}[6\,(c+d\,x)]+4\,a^7\,b^2\,\mathrm{Sin}[6\,(c+d\,x)]+6\,a^5\,b^4\,\mathrm{Sin}[6\,(c+d\,x)]+4\,a^3\,b^6\,\mathrm{Sin}[6\,(c+d\,x)]+a\,b^8\,\mathrm{Sin}[6\,(c+d\,x)]\right)$$

- **Problem 69: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sin}[c+d\,x]^2}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 206 leaves, 7 steps):

$$\frac{a\left(a^4-14\,a^2\,b^2+9\,b^4\right)x}{2\left(a^2+b^2\right)^4}+\frac{b\left(3\,a^4-8\,a^2\,b^2+b^4\right)\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^4 d}-\frac{a^2\,b}{2\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{2\,a\,b\left(a^2-b^2\right)}{\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d\,x])}-\frac{\text{Cos}[c+d\,x]^2\left(b\left(3\,a^2-b^2\right)+a\left(a^2-3\,b^2\right)\text{Tan}[c+d\,x]\right)}{2\left(a^2+b^2\right)^3 d}$$

Result (type 3, 613 leaves):

$$\frac{1}{16\,d\,(a+b\,\text{Tan}[c+d\,x])^3}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(-\frac{4\,a\left(a^2-3\,b^2\right)(c+d\,x)}{\left(a^2+b^2\right)^3}+\frac{4\,b\left(-3\,a^2+b^2\right)\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^3}-\frac{b\left(3\,a^2-b^2\right)}{2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{3\left(a^2-3\,b^2\right)\text{Sin}[c+d\,x]}{\left(a^2+b^2\right)^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)+\frac{\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(-b\,\text{Cos}[2\,(c+d\,x)]+a\,\text{Sin}[2\,(c+d\,x)])}{16\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^3}+\frac{1}{32\left(a^2+b^2\right)^4 d\,(a+b\,\text{Tan}[c+d\,x])^3}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\Bigg(24\,a\left(a^4-10\,a^2\,b^2+5\,b^4\right)(c+d\,x)+24\,i\left(5\,a^4\,b-10\,a^2\,b^3+b^5\right)(c+d\,x)-24\,i\,b\left(5\,a^4-10\,a^2\,b^2+b^4\right)\text{ArcTan}[\text{Tan}[c+d\,x]]+8\,b\left(-3\,a^2+b^2\right)\left(a^2+b^2\right)\text{Cos}[2\,(c+d\,x)]+12\,b\left(5\,a^4-10\,a^2\,b^2+b^4\right)\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]+\frac{b\left(a^2+b^2\right)\left(5\,a^4-10\,a^2\,b^2+b^4\right)}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{10\left(a^2+b^2\right)\left(a^4-10\,a^2\,b^2+5\,b^4\right)\text{Sin}[c+d\,x]}{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}-8\,a\left(a^2-3\,b^2\right)\left(a^2+b^2\right)\text{Sin}[2\,(c+d\,x)]\Bigg)$$

- **Problem 70: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Csc}[c+d\,x]^2}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 95 leaves, 3 steps):

$$-\frac{\text{Cot}[c+d\,x]}{a^3\,d}-\frac{3\,b\,\text{Log}[\text{Tan}[c+d\,x]]}{a^4\,d}+\frac{3\,b\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{a^4\,d}-\frac{b}{2\,a^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{2\,b}{a^3\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 241 leaves) :

$$\frac{1}{2 a^4 \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^2}\left(-2 a^3 \left(a^2+b^2\right) \operatorname{Cot}[c+d x]+b \left(-2 a^2 \left(a^2+b^2\right) (2+3 \operatorname{Log}[\operatorname{Sin}[c+d x]]-3 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]])-a^2 b^2 \operatorname{Sec}[c+d x]^2+2 a b \left(2 a^2+b^2-6 \left(a^2+b^2\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]+6 \left(a^2+b^2\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]\right) \operatorname{Tan}[c+d x]-2 b^2 \left(-3 a^2-2 b^2+3 \left(a^2+b^2\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]-3 \left(a^2+b^2\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]\right) \operatorname{Tan}[c+d x]^2\right)\right)$$

Problem 71: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 178 leaves, 3 steps) :

$$-\frac{\left(a^2+6 b^2\right) \operatorname{Cot}[c+d x]}{a^5 d}+\frac{3 b \operatorname{Cot}[c+d x]^2}{2 a^4 d}-\frac{\operatorname{Cot}[c+d x]^3}{3 a^3 d}-\frac{b \left(3 a^2+10 b^2\right) \operatorname{Log}[\operatorname{Tan}[c+d x]]}{a^6 d}+\frac{b \left(3 a^2+10 b^2\right) \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{a^6 d}-\frac{b \left(a^2+b^2\right)}{2 a^4 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{2 b \left(a^2+2 b^2\right)}{a^5 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 456 leaves) :

$$-\frac{b^3 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 a^4 d (a+b \operatorname{Tan}[c+d x])^3}-\frac{\operatorname{Csc}[c+d x]^3 \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{3 a^3 d (a+b \operatorname{Tan}[c+d x])^3}-$$
$$\frac{2 \left(a^2 \operatorname{Cos}[c+d x]+9 b^2 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{3 a^5 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{3 b \operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{2 a^4 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{\left(-3 a^2 b-10 b^3\right) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{a^6 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{\left(3 a^2 b+10 b^3\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{a^6 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{\operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \left(3 a^2 b^2 \operatorname{Sin}[c+d x]+4 b^4 \operatorname{Sin}[c+d x]\right)}{a^6 d (a+b \operatorname{Tan}[c+d x])^3}$$

Problem 72: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^6}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 265 leaves, 3 steps) :

$$-\frac{\left(a^4+12 a^2 b^2+15 b^4\right) \text{Cot}[c+d x]}{a^7 d}+\frac{b \left(3 a^2+5 b^2\right) \text{Cot}[c+d x]^2}{a^6 d}-\frac{2 \left(a^2+3 b^2\right) \text{Cot}[c+d x]^3}{3 a^5 d}+\frac{3 b \text{Cot}[c+d x]^4}{4 a^4 d}-\frac{\text{Cot}[c+d x]^5}{5 a^3 d}-\frac{b \left(3 a^4+20 a^2 b^2+21 b^4\right) \text{Log}[\text{Tan}[c+d x]]}{a^8 d}+\frac{b \left(3 a^4+20 a^2 b^2+21 b^4\right) \text{Log}[a+b \text{Tan}[c+d x]]}{a^8 d}-\frac{b \left(a^2+b^2\right)^2}{2 a^6 d (a+b \text{Tan}[c+d x])^2}-\frac{2 b \left(a^2+b^2\right) \left(a^2+3 b^2\right)}{a^7 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 670 leaves) :

$$\frac{\left(-3 a^4 b-20 a^2 b^3-21 b^5\right) \text{Log}[\text{Sin}[c+d x]] \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}{a^8 d (a+b \text{Tan}[c+d x])^3}+\frac{1}{a^8 d (a+b \text{Tan}[c+d x])^3}\left(3 a^4 b+20 a^2 b^3+21 b^5\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]] \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3+\frac{1}{960 a^8 d (a+b \text{Tan}[c+d x])^3} \text{Csc}[c+d x]^5 \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \Big(-200 a^7 \text{Cos}[c+d x]+135 a^5 b^2 \text{Cos}[c+d x]+210 a^3 b^4 \text{Cos}[c+d x]-675 a b^6 \text{Cos}[c+d x]-8 a^7 \text{Cos}[3 (c+d x)]-567 a^5 b^2 \text{Cos}[3 (c+d x)]-630 a^3 b^4 \text{Cos}[3 (c+d x)]+1215 a b^6 \text{Cos}[3 (c+d x)]+24 a^7 \text{Cos}[5 (c+d x)]+619 a^5 b^2 \text{Cos}[5 (c+d x)]+630 a^3 b^4 \text{Cos}[5 (c+d x)]-675 a b^6 \text{Cos}[5 (c+d x)]-8 a^7 \text{Cos}[7 (c+d x)]-187 a^5 b^2 \text{Cos}[7 (c+d x)]-210 a^3 b^4 \text{Cos}[7 (c+d x)]+135 a b^6 \text{Cos}[7 (c+d x)]+120 a^6 b \text{Sin}[c+d x]+1335 a^4 b^3 \text{Sin}[c+d x]+5175 a^2 b^5 \text{Sin}[c+d x]+3150 b^7 \text{Sin}[c+d x]+126 a^6 b \text{Sin}[3 (c+d x)]-1665 a^4 b^3 \text{Sin}[3 (c+d x)]-4635 a^2 b^5 \text{Sin}[3 (c+d x)]-1890 b^7 \text{Sin}[3 (c+d x)]-10 a^6 b \text{Sin}[5 (c+d x)]+1215 a^4 b^3 \text{Sin}[5 (c+d x)]+2565 a^2 b^5 \text{Sin}[5 (c+d x)]+630 b^7 \text{Sin}[5 (c+d x)]-16 a^6 b \text{Sin}[7 (c+d x)]-345 a^4 b^3 \text{Sin}[7 (c+d x)]-585 a^2 b^5 \text{Sin}[7 (c+d x)]-90 b^7 \text{Sin}[7 (c+d x)]\Big)$$

- **Problem 73: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sin}[c+d x]^4}{(a+b \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 366 leaves, 8 steps) :

$$\frac{\left(3 a^8-132 a^6 b^2+370 a^4 b^4-132 a^2 b^6+3 b^8\right) x}{8 \left(a^2+b^2\right)^6}+\frac{4 a b \left(a^2-b^2\right) \left(a^4-8 a^2 b^2+b^4\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^6 d}-\frac{a^4 b}{3 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])^3}-\frac{a^3 b \left(a^2-2 b^2\right)}{\left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^2}-\frac{3 a^2 b \left(a^4-5 a^2 b^2+2 b^4\right)}{\left(a^2+b^2\right)^5 d (a+b \text{Tan}[c+d x])}+\frac{\text{Cos}[c+d x]^4 \left(4 a b \left(a^2-b^2\right)+\left(a^4-6 a^2 b^2+b^4\right) \text{Tan}[c+d x]\right)}{4 \left(a^2+b^2\right)^4 d}-\frac{\text{Cos}[c+d x]^2 \left(16 a b \left(2 a^4-5 a^2 b^2+b^4\right)+\left(5 a^6-65 a^4 b^2+55 a^2 b^4-3 b^6\right) \text{Tan}[c+d x]\right)}{8 \left(a^2+b^2\right)^5 d}$$

Result (type 3, 2613 leaves) :

$$\frac{1}{768\, a \left(a^2+b^2\right)^6 d\, (a+b \text{Tan}[c+d x])^4}$$

$$\text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \Big(-221 a^{11} b \text{Cos}[3 (c+d x)]-2853 a^9 b^3 \text{Cos}[3 (c+d x)]+4830 a^7 b^5 \text{Cos}[3 (c+d x)]+$$

$$5334 a^5 b^7 \text{Cos}[3 (c+d x)]-2097 a^3 b^9 \text{Cos}[3 (c+d x)]+31 a b^{11} \text{Cos}[3 (c+d x)]+120 a^{12} (c+d x) \text{Cos}[3 (c+d x)]+$$

$$960 i a^{11} b (c+d x) \text{Cos}[3 (c+d x)]-3720 a^{10} b^2 (c+d x) \text{Cos}[3 (c+d x)]-9600 i a^9 b^3 (c+d x) \text{Cos}[3 (c+d x)]+$$

$$18480 a^8 b^4 (c+d x) \text{Cos}[3 (c+d x)]+26880 i a^7 b^5 (c+d x) \text{Cos}[3 (c+d x)]-28560 a^6 b^6 (c+d x) \text{Cos}[3 (c+d x)]-$$

$$21120 i a^5 b^7 (c+d x) \text{Cos}[3 (c+d x)]+10200 a^4 b^8 (c+d x) \text{Cos}[3 (c+d x)]+2880 i a^3 b^9 (c+d x) \text{Cos}[3 (c+d x)]-$$

$$360 a^2 b^{10} (c+d x) \text{Cos}[3 (c+d x)]-45 a^{11} b \text{Cos}[5 (c+d x)]-165 a^9 b^3 \text{Cos}[5 (c+d x)]-210 a^7 b^5 \text{Cos}[5 (c+d x)]-90 a^5 b^7 \text{Cos}[5 (c+d x)]+$$

$$15 a^3 b^9 \text{Cos}[5 (c+d x)]+15 a b^{11} \text{Cos}[5 (c+d x)]+3 a^{11} b \text{Cos}[7 (c+d x)]+15 a^9 b^3 \text{Cos}[7 (c+d x)]+30 a^7 b^5 \text{Cos}[7 (c+d x)]+$$

$$30 a^5 b^7 \text{Cos}[7 (c+d x)]+15 a^3 b^9 \text{Cos}[7 (c+d x)]+3 a b^{11} \text{Cos}[7 (c+d x)]+480 a^{11} b \text{Cos}[3 (c+d x)] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]-$$

$$4800 a^9 b^3 \text{Cos}[3 (c+d x)] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+13440 a^7 b^5 \text{Cos}[3 (c+d x)] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]-$$

$$10560 a^5 b^7 \text{Cos}[3 (c+d x)] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+1440 a^3 b^9 \text{Cos}[3 (c+d x)] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+$$

$$3 a \left(a^2+b^2\right) \text{Cos}[c+d x] \Big(-17 b^9+120 a^9 (c+d x)-3360 a^7 b^2 (c+d x)+8400 a^5 b^4 (c+d x)-3360 a^3 b^6 (c+d x)+$$

$$120 a b^8 (c+d x)+60 a^2 b^7 (11-16 i (c+d x))+84 a^6 b^3 (21-80 i (c+d x))+3 a^8 b (-67+320 i (c+d x))+$$

$$42 i a^4 b^5 (59 i+160 (c+d x))+480 a^2 b \left(a^6-7 a^4 b^2+7 a^2 b^4-b^6\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\Big)-90 a^{12} \text{Sin}[c+d x]+$$

$$1737 a^{10} b^2 \text{Sin}[c+d x]+3339 a^8 b^4 \text{Sin}[c+d x]-9702 a^6 b^6 \text{Sin}[c+d x]-6804 a^4 b^8 \text{Sin}[c+d x]+4269 a^2 b^{10} \text{Sin}[c+d x]-$$

$$141 b^{12} \text{Sin}[c+d x]+360 a^{11} b (c+d x) \text{Sin}[c+d x]+2880 i a^{10} b^2 (c+d x) \text{Sin}[c+d x]-9720 a^9 b^3 (c+d x) \text{Sin}[c+d x]-$$

$$17280 i a^8 b^4 (c+d x) \text{Sin}[c+d x]+15120 a^7 b^5 (c+d x) \text{Sin}[c+d x]+15120 a^5 b^7 (c+d x) \text{Sin}[c+d x]+$$

$$17280 i a^4 b^8 (c+d x) \text{Sin}[c+d x]-9720 a^3 b^9 (c+d x) \text{Sin}[c+d x]-2880 i a^2 b^{10} (c+d x) \text{Sin}[c+d x]+360 a b^{11} (c+d x) \text{Sin}[c+d x]+$$

$$1440 a^{10} b^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]-8640 a^8 b^4 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]+$$

$$8640 a^4 b^8 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]-1440 a^2 b^{10} \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[c+d x]-$$

$$3840 i a^2 b \left(a^6-7 a^4 b^2+7 a^2 b^4-b^6\right) \text{ArcTan}[\text{Tan}[c+d x]] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3+$$

$$6 \left(a^2+b^2\right)^5 \left(-a b \text{Cos}[3 (c+d x)]+\left(2 a^2+b^2+\left(a^2-b^2\right) \text{Cos}[2 (c+d x)]\right) \text{Sin}[c+d x]\right)-8 \left(a^2+b^2\right)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3$$

$$\Big(96 i a^2 b \left(a^2-b^2\right) (c+d x)-96 i a^2 b \left(a^2-b^2\right) \text{ArcTan}[\text{Tan}[c+d x]]+48 a^2 b \left(a^2-b^2\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+$$

$$\frac{1}{(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3} \Big(6 a \left(a^2+b^2\right) \left(2 a^4 b+8 a^2 b^3-2 b^5+3 a^5 (c+d x)-18 a^3 b^2 (c+d x)+3 a b^4 (c+d x)\right) \text{Cos}[c+d x]+$$

$$a \left(a^4-6 a^2 b^2+b^4\right) \left(11 a^2 b+11 b^3+6 a^3 (c+d x)-18 a b^2 (c+d x)\right) \text{Cos}[3 (c+d x)]-$$

$$\Big(10 a^8-63 a^6 b^2-105 a^4 b^4-21 a^2 b^6+11 b^8-36 a^7 b (c+d x)+204 a^5 b^3 (c+d x)+36 a^3 b^5 (c+d x)-12 a b^7 (c+d x)+$$

$$\left(a^4-6 a^2 b^2+b^4\right) \left(11 a^4-11 b^4-36 a^3 b (c+d x)+12 a b^3 (c+d x)\right) \text{Cos}[2 (c+d x)]\Big) \text{Sin}[c+d x]\Big)\Big)-$$

$$110 a^{12} \text{Sin}[3 (c+d x)]+1757 a^{10} b^2 \text{Sin}[3 (c+d x)]-1857 a^8 b^4 \text{Sin}[3 (c+d x)]+882 a^6 b^6 \text{Sin}[3 (c+d x)]+$$

$$2928 a^4 b^8 \text{Sin}[3 (c+d x)]-1631 a^2 b^{10} \text{Sin}[3 (c+d x)]+47 b^{12} \text{Sin}[3 (c+d x)]+360 a^{11} b (c+d x) \text{Sin}[3 (c+d x)]+$$

$$2880 i a^{10} b^2 (c+d x) \text{Sin}[3 (c+d x)]-10200 a^9 b^3 (c+d x) \text{Sin}[3 (c+d x)]-21120 i a^8 b^4 (c+d x) \text{Sin}[3 (c+d x)]+$$

$$28560 a^7 b^5 (c+d x) \text{Sin}[3 (c+d x)]+26880 i a^6 b^6 (c+d x) \text{Sin}[3 (c+d x)]-18480 a^5 b^7 (c+d x) \text{Sin}[3 (c+d x)]-$$

$$9600 i a^4 b^8 (c+d x) \text{Sin}[3 (c+d x)]+3720 a^3 b^9 (c+d x) \text{Sin}[3 (c+d x)]+960 i a^2 b^{10} (c+d x) \text{Sin}[3 (c+d x)]-$$

$$120 a b^{11} (c+d x) \text{Sin}[3 (c+d x)]+1440 a^{10} b^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[3 (c+d x)]-$$

$$10560 a^8 b^4 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[3 (c+d x)]+13440 a^6 b^6 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[3 (c+d x)]-$$

$$4800 a^4 b^8 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[3 (c+d x)]+480 a^2 b^{10} \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sin}[3 (c+d x)]-$$

$15\,a^{12}\,\text{Sin}[5\,(c+d\,x)] - 15\,a^{10}\,b^2\,\text{Sin}[5\,(c+d\,x)] + 90\,a^8\,b^4\,\text{Sin}[5\,(c+d\,x)] + 210\,a^6\,b^6\,\text{Sin}[5\,(c+d\,x)] +$
$165\,a^4\,b^8\,\text{Sin}[5\,(c+d\,x)] + 45\,a^2\,b^{10}\,\text{Sin}[5\,(c+d\,x)] + 3\,a^{12}\,\text{Sin}[7\,(c+d\,x)] + 15\,a^{10}\,b^2\,\text{Sin}[7\,(c+d\,x)] +$
$30\,a^8\,b^4\,\text{Sin}[7\,(c+d\,x)] + 30\,a^6\,b^6\,\text{Sin}[7\,(c+d\,x)] + 15\,a^4\,b^8\,\text{Sin}[7\,(c+d\,x)] + 3\,a^2\,b^{10}\,\text{Sin}[7\,(c+d\,x)]\Big)$

- **Problem 74: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Sin}[c+d\,x]^2}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 264 leaves, 7 steps):

$$\frac{\left(a^6-25\,a^4\,b^2+35\,a^2\,b^4-3\,b^6\right)\,x}{2\,\left(a^2+b^2\right)^5}+\frac{4\,a\,b\,\left(a^4-5\,a^2\,b^2+2\,b^4\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^5\,d}-\frac{a^2\,b}{3\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^3}-$$
$$\frac{a\,b\,\left(a^2-b^2\right)}{\left(a^2+b^2\right)^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{b\,\left(3\,a^4-8\,a^2\,b^2+b^4\right)}{\left(a^2+b^2\right)^4\,d\,(a+b\,\text{Tan}[c+d\,x])}-\frac{\text{Cos}[c+d\,x]^2\,\left(4\,a\,b\,\left(a^2-b^2\right)+\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Tan}[c+d\,x]\right)}{2\,\left(a^2+b^2\right)^4\,d}$$

Result (type 3, 2340 leaves):

$$\left(\mathrm{Sec}[c+d x]^4\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,\left(-a\,b\,\mathrm{Cos}[3\,(c+d x)]+\left(2\,a^2+b^2+\left(a^2-b^2\right)\mathrm{Cos}[2\,(c+d x)]\right)\mathrm{Sin}[c+d x]\right)\right)\Big/$$

$$\left(48\,a\,\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d x])^4\right)-\frac{1}{48\,a\,\left(a^2+b^2\right)^4 d\,(a+b\,\mathrm{Tan}[c+d x])^4}\,\mathrm{Sec}[c+d x]^4\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4$$

$$\Big(96\,i\,a^2\,b\,\left(a^2-b^2\right)(c+d x)-96\,i\,a^2\,b\,\left(a^2-b^2\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d x]]+48\,a^2\,b\,\left(a^2-b^2\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]+$$

$$\frac{1}{(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^3}\,\left(6\,a\,\left(a^2+b^2\right)\left(2\,a^4\,b+8\,a^2\,b^3-2\,b^5+3\,a^5\,(c+d x)-18\,a^3\,b^2\,(c+d x)+3\,a\,b^4\,(c+d x)\right)\mathrm{Cos}[c+d x]+\right.$$

$$a\,\left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^2\,b+11\,b^3+6\,a^3\,(c+d x)-18\,a\,b^2\,(c+d x)\right)\mathrm{Cos}[3\,(c+d x)]-$$

$$\Big(10\,a^8-63\,a^6\,b^2-105\,a^4\,b^4-21\,a^2\,b^6+11\,b^8-36\,a^7\,b\,(c+d x)+204\,a^5\,b^3\,(c+d x)+36\,a^3\,b^5\,(c+d x)-12\,a\,b^7\,(c+d x)+$$

$$\left.\left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^4-11\,b^4-36\,a^3\,b\,(c+d x)+12\,a\,b^3\,(c+d x)\right)\mathrm{Cos}[2\,(c+d x)]\Big)\,\mathrm{Sin}[c+d x]\right)\Big)+$$

$$\Big(\mathrm{Sec}[c+d x]^4\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,\Big(-3\,a\,b\,\left(a^2+b^2\right)\mathrm{Cos}[c+d x]-2\,a\,b\,\left(a^2-b^2\right)\mathrm{Cos}[3\,(c+d x)]-3\,a^2\,b^2\,\mathrm{Sin}[c+d x]-$$

$$3\,b^4\,\mathrm{Sin}[c+d x]+a^4\,\mathrm{Sin}[3\,(c+d x)]-2\,a^2\,b^2\,\mathrm{Sin}[3\,(c+d x)]+b^4\,\mathrm{Sin}[3\,(c+d x)]\Big)\Big)\Big/$$

$$\left(96\,a\,\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+d x])^4\right)-\frac{1}{96\,a\,\left(a^2+b^2\right)^5 d\,(a+b\,\mathrm{Tan}[c+d x])^4}$$

$$\mathrm{Sec}[c+d x]^4\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])$$

$$\Big(a^9\,b\,\mathrm{Cos}[3\,(c+d x)]+436\,a^7\,b^3\,\mathrm{Cos}[3\,(c+d x)]+54\,a^5\,b^5\,\mathrm{Cos}[3\,(c+d x)]-364\,a^3\,b^7\,\mathrm{Cos}[3\,(c+d x)]+17\,a\,b^9\,\mathrm{Cos}[3\,(c+d x)]-$$

$$24\,a^{10}\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-144\,i\,a^9\,b\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+432\,a^8\,b^2\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+$$

$$912\,i\,a^7\,b^3\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-1440\,a^6\,b^4\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-1584\,i\,a^5\,b^5\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+$$

$$1104\,a^4\,b^6\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+432\,i\,a^3\,b^7\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-72\,a^2\,b^8\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+$$

$$3\,a^9\,b\,\mathrm{Cos}[5\,(c+d x)]+12\,a^7\,b^3\,\mathrm{Cos}[5\,(c+d x)]+18\,a^5\,b^5\,\mathrm{Cos}[5\,(c+d x)]+12\,a^3\,b^7\,\mathrm{Cos}[5\,(c+d x)]+3\,a\,b^9\,\mathrm{Cos}[5\,(c+d x)]-$$

$$72\,a^9\,b\,\mathrm{Cos}[3\,(c+d x)]\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]+456\,a^7\,b^3\,\mathrm{Cos}[3\,(c+d x)]\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]-$$

$$792\,a^5\,b^5\,\mathrm{Cos}[3\,(c+d x)]\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]+216\,a^3\,b^7\,\mathrm{Cos}[3\,(c+d x)]\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]-$$

$$3\,a\,\left(a^2+b^2\right)\mathrm{Cos}[c+d x]\,\Big(7\,b^7+24\,a^7\,(c+d x)-360\,a^5\,b^2\,(c+d x)+360\,a^3\,b^4\,(c+d x)-24\,a\,b^6\,(c+d x)+5\,a^4\,b^3\,(25-96\,i\,(c+d x))+$$

$$a^6\,b\,(-13+144\,i\,(c+d x))+3\,i\,a^2\,b^5\,(37\,i+48\,(c+d x))+24\,a^2\,b\,\left(3\,a^4-10\,a^2\,b^2+3\,b^4\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\Big)+$$

$$18\,a^{10}\,\mathrm{Sin}[c+d x]-195\,a^8\,b^2\,\mathrm{Sin}[c+d x]-588\,a^6\,b^4\,\mathrm{Sin}[c+d x]+210\,a^4\,b^6\,\mathrm{Sin}[c+d x]+546\,a^2\,b^8\,\mathrm{Sin}[c+d x]-39\,b^{10}\,\mathrm{Sin}[c+d x]-$$

$$72\,a^9\,b\,(c+d x)\,\mathrm{Sin}[c+d x]-432\,i\,a^8\,b^2\,(c+d x)\,\mathrm{Sin}[c+d x]+1008\,a^7\,b^3\,(c+d x)\,\mathrm{Sin}[c+d x]+1008\,i\,a^6\,b^4\,(c+d x)\,\mathrm{Sin}[c+d x]+$$

$$1008\,i\,a^4\,b^6\,(c+d x)\,\mathrm{Sin}[c+d x]-1008\,a^3\,b^7\,(c+d x)\,\mathrm{Sin}[c+d x]-432\,i\,a^2\,b^8\,(c+d x)\,\mathrm{Sin}[c+d x]+72\,a\,b^9\,(c+d x)\,\mathrm{Sin}[c+d x]-$$

$$216\,a^8\,b^2\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[c+d x]+504\,a^6\,b^4\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[c+d x]+$$

$$504\,a^4\,b^6\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[c+d x]-216\,a^2\,b^8\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[c+d x]+$$

$$192\,i\,a^2\,b\,\left(3\,a^4-10\,a^2\,b^2+3\,b^4\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d x]]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^3+22\,a^{10}\,\mathrm{Sin}[3\,(c+d x)]-$$

$$195\,a^8\,b^2\,\mathrm{Sin}[3\,(c+d x)]+128\,a^6\,b^4\,\mathrm{Sin}[3\,(c+d x)]+110\,a^4\,b^6\,\mathrm{Sin}[3\,(c+d x)]-222\,a^2\,b^8\,\mathrm{Sin}[3\,(c+d x)]+13\,b^{10}\,\mathrm{Sin}[3\,(c+d x)]-$$

$$72\,a^9\,b\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-432\,i\,a^8\,b^2\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+1104\,a^7\,b^3\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+$$

$$1584\,i\,a^6\,b^4\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-1440\,a^5\,b^5\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-912\,i\,a^4\,b^6\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+$$

$$432\,a^3\,b^7\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+144\,i\,a^2\,b^8\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-24\,a\,b^9\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-$$

$$216\,a^8\,b^2\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[3\,(c+d x)]+792\,a^6\,b^4\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[3\,(c+d x)]-$$

$$456\,a^4\,b^6\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[3\,(c+d x)]+72\,a^2\,b^8\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\right]\mathrm{Sin}[3\,(c+d x)]+$$

$$3\,a^{10}\,\mathrm{Sin}[5\,(c+d x)]+12\,a^8\,b^2\,\mathrm{Sin}[5\,(c+d x)]+18\,a^6\,b^4\,\mathrm{Sin}[5\,(c+d x)]+12\,a^4\,b^6\,\mathrm{Sin}[5\,(c+d x)]+3\,a^2\,b^8\,\mathrm{Sin}[5\,(c+d x)]\Big)$$

Problem 75: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^2}{(a+b \operatorname{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 116 leaves, 3 steps):

$$-\frac{\operatorname{Cot}[c+d x]}{a^4 d}-\frac{4 b \operatorname{Log}[\operatorname{Tan}[c+d x]]}{a^5 d}+\frac{4 b \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{a^5 d}-\frac{b}{3 a^2 d (a+b \operatorname{Tan}[c+d x])^3}-\frac{b}{a^3 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{3 b}{a^4 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 259 leaves):

$$\frac{1}{3 a^5 d (a+b \operatorname{Tan}[c+d x])^4} \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \left(-3 a (b+a \operatorname{Cot}[c+d x])^3 \operatorname{Sin}[c+d x]^2+\frac{a^2 b^4 \operatorname{Tan}[c+d x]}{a^2+b^2}+\frac{b^2 \left(18 a^4+23 a^2 b^2+9 b^4\right) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \operatorname{Tan}[c+d x]}{\left(a^2+b^2\right)^2}-\frac{2 a^2 b^3 \left(3 a^2+2 b^2\right) (a+b \operatorname{Tan}[c+d x])}{\left(a^2+b^2\right)^2}-12 b \operatorname{Cos}[c+d x]^2 \operatorname{Log}[\operatorname{Sin}[c+d x]] (a+b \operatorname{Tan}[c+d x])^3+12 b \operatorname{Cos}[c+d x]^2 \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] (a+b \operatorname{Tan}[c+d x])^3\right)$$

Problem 76: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 205 leaves, 3 steps):

$$-\frac{\left(a^2+10 b^2\right) \operatorname{Cot}[c+d x]}{a^6 d}+\frac{2 b \operatorname{Cot}[c+d x]^2}{a^5 d}-\frac{\operatorname{Cot}[c+d x]^3}{3 a^4 d}-\frac{4 b \left(a^2+5 b^2\right) \operatorname{Log}[\operatorname{Tan}[c+d x]]}{a^7 d}+\frac{4 b \left(a^2+5 b^2\right) \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{a^7 d}-\frac{b \left(a^2+b^2\right)}{3 a^4 d (a+b \operatorname{Tan}[c+d x])^3}-\frac{b \left(a^2+2 b^2\right)}{a^5 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{b \left(3 a^2+10 b^2\right)}{a^6 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 528 leaves):

$$\frac{1}{48 a^7 d (a+b \operatorname{Tan}[c+d x])^4} \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \left(-192 b \left(a^2+5 b^2\right) \operatorname{Log}[\operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3+192 b \left(a^2+5 b^2\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3-\frac{1}{a^2+b^2} \operatorname{Csc}[c+d x]^3 \left(8 a^8-4 a^6 b^2-50 a^4 b^4-190 a^2 b^6-150 b^8+3 \left(3 a^8+10 a^6 b^2+45 a^4 b^4+115 a^2 b^6+75 b^8\right) \operatorname{Cos}[2 (c+d x)]+6 \left(2 a^6 b^2-17 a^4 b^4-35 a^2 b^6-15 b^8\right) \operatorname{Cos}[4 (c+d x)]-a^8 \operatorname{Cos}[6 (c+d x)]-22 a^6 b^2 \operatorname{Cos}[6 (c+d x)]+17 a^4 b^4 \operatorname{Cos}[6 (c+d x)]+55 a^2 b^6 \operatorname{Cos}[6 (c+d x)]+15 b^8 \operatorname{Cos}[6 (c+d x)]-3 a^7 b \operatorname{Sin}[2 (c+d x)]+3 a^5 b^3 \operatorname{Sin}[2 (c+d x)]-75 a^3 b^5 \operatorname{Sin}[2 (c+d x)]-75 a b^7 \operatorname{Sin}[2 (c+d x)]-6 a^7 b \operatorname{Sin}[4 (c+d x)]+84 a^5 b^3 \operatorname{Sin}[4 (c+d x)]+156 a^3 b^5 \operatorname{Sin}[4 (c+d x)]+60 a b^7 \operatorname{Sin}[4 (c+d x)]-3 a^7 b \operatorname{Sin}[6 (c+d x)]-65 a^5 b^3 \operatorname{Sin}[6 (c+d x)]-79 a^3 b^5 \operatorname{Sin}[6 (c+d x)]-15 a b^7 \operatorname{Sin}[6 (c+d x)]\right)\right)$$

Problem 77: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[c+d x]^6}{(a+b \operatorname{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 300 leaves, 3 steps):

$$-\frac{\left(a^4+20 a^2 b^2+35 b^4\right) \operatorname{Cot}[c+d x]}{a^8 d}+\frac{2 b \left(2 a^2+5 b^2\right) \operatorname{Cot}[c+d x]^2}{a^7 d}-\frac{2 \left(a^2+5 b^2\right) \operatorname{Cot}[c+d x]^3}{3 a^6 d}+\frac{b \operatorname{Cot}[c+d x]^4}{a^5 d}-\frac{\operatorname{Cot}[c+d x]^5}{5 a^4 d}-\frac{4 b \left(a^4+10 a^2 b^2+14 b^4\right) \operatorname{Log}[\operatorname{Tan}[c+d x]]}{a^9 d}+\frac{4 b \left(a^4+10 a^2 b^2+14 b^4\right) \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{a^9 d}-\frac{b \left(a^2+b^2\right)^2}{3 a^6 d (a+b \operatorname{Tan}[c+d x])^3}-\frac{b \left(a^2+b^2\right) \left(a^2+3 b^2\right)}{a^7 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{b \left(3 a^4+20 a^2 b^2+21 b^4\right)}{a^8 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 673 leaves):

$$\frac{1}{1920 a^9 d (a+b \operatorname{Tan}[c+d x])^4} \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \left(-7680 b \left(a^4+10 a^2 b^2+14 b^4\right) \operatorname{Log}[\operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3+7680 b \left(a^4+10 a^2 b^2+14 b^4\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3+\operatorname{Csc}[c+d x]^5 \left(-200 a^8+380 a^6 b^2+3070 a^4 b^4+11375 a^2 b^6+11025 b^8-4 \left(52 a^8+194 a^6 b^2+1510 a^4 b^4+5705 a^2 b^6+4410 b^8\right) \operatorname{Cos}[2 (c+d x)]+4 \left(4 a^8-16 a^6 b^2+1010 a^4 b^4+4585 a^2 b^6+2205 b^8\right) \operatorname{Cos}[4 (c+d x)]+16 a^8 \operatorname{Cos}[6 (c+d x)]+776 a^6 b^2 \operatorname{Cos}[6 (c+d x)]-1000 a^4 b^4 \operatorname{Cos}[6 (c+d x)]-8540 a^2 b^6 \operatorname{Cos}[6 (c+d x)]-2520 b^8 \operatorname{Cos}[6 (c+d x)]-8 a^8 \operatorname{Cos}[8 (c+d x)]-316 a^6 b^2 \operatorname{Cos}[8 (c+d x)]-70 a^4 b^4 \operatorname{Cos}[8 (c+d x)]+1645 a^2 b^6 \operatorname{Cos}[8 (c+d x)]+315 b^8 \operatorname{Cos}[8 (c+d x)]+264 a^7 b \operatorname{Sin}[2 (c+d x)]+372 a^5 b^3 \operatorname{Sin}[2 (c+d x)]+4830 a^3 b^5 \operatorname{Sin}[2 (c+d x)]+1470 a b^7 \operatorname{Sin}[2 (c+d x)]+144 a^7 b \operatorname{Sin}[4 (c+d x)]-2476 a^5 b^3 \operatorname{Sin}[4 (c+d x)]-9730 a^3 b^5 \operatorname{Sin}[4 (c+d x)]-1470 a b^7 \operatorname{Sin}[4 (c+d x)]-24 a^7 b \operatorname{Sin}[6 (c+d x)]+2756 a^5 b^3 \operatorname{Sin}[6 (c+d x)]+7670 a^3 b^5 \operatorname{Sin}[6 (c+d x)]+630 a b^7 \operatorname{Sin}[6 (c+d x)]-24 a^7 b \operatorname{Sin}[8 (c+d x)]-922 a^5 b^3 \operatorname{Sin}[8 (c+d x)]-2095 a^3 b^5 \operatorname{Sin}[8 (c+d x)]-105 a b^7 \operatorname{Sin}[8 (c+d x)]\right)\right)$$

Problem 78: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\operatorname{Csc}[x]}{1+\operatorname{Tan}[x]} \, dx$$

Optimal (type 3, 26 leaves, 6 steps) :

$$-\text{ArcTanh}[\text{Cos}[x]]+\frac{\text{ArcTanh}\left[\frac{\text{Cos}[x]-\text{Sin}[x]}{\sqrt{2}}\right]}{\sqrt{2}}$$

Result (type 3, 41 leaves) :

$$(1+i)\ (-1)^{3/4}\ \text{ArcTanh}\left[\frac{-1+\text{Tan}\left[\frac{x}{2}\right]}{\sqrt{2}}\right]-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Sin}\left[\frac{x}{2}\right]\right]$$

- **Problem 82: Unable to integrate problem.**

$$\int\frac{\text{Sin}[c+d\,x]^m}{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 6, 765 leaves, 14 steps) :

$$\frac{1}{a\,d\,(1+m)}2^{1+m}\,\text{Hypergeometric2F1}\left[\frac{1+m}{2},1+m,\frac{3+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m+$$

$$\left(2^{1+m}\,b\,\text{AppellF1}\left[\frac{2+m}{2},1+m,1,\frac{4+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{a^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(b-\sqrt{a^2+b^2}\right)^2}\right]\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m\right)\Big/\left(\sqrt{a^2+b^2}\left(b-\sqrt{a^2+b^2}\right)d\,(2+m)\right)-$$

$$\left(2^{1+m}\,b\,\text{AppellF1}\left[\frac{2+m}{2},1+m,1,\frac{4+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{a^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(b+\sqrt{a^2+b^2}\right)^2}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\left.\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m\right)\Big/\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)d\,(2+m)\right)+$$

$$\left(2^{1+m}\,a\,b\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{a^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(b-\sqrt{a^2+b^2}\right)^2}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right.$$

$$\left.\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m\right)\Big/\left(\sqrt{a^2+b^2}\left(b-\sqrt{a^2+b^2}\right)^2d\,(3+m)\right)-$$

$$\left(2^{1+m}\,a\,b\,\text{AppellF1}\left[\frac{3+m}{2},1+m,1,\frac{5+m}{2},-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2,\frac{a^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{\left(b+\sqrt{a^2+b^2}\right)^2}\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^3\right.$$

$$\left.\left(\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right)^m\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^m\right)\Big/\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)^2d\,(3+m)\right)$$

Result (type 8, 23 leaves) :

$$\int \frac{\text{Sin}[c+d\,x]^m}{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Problem 84: Unable to integrate problem.

$$\int \text{Sin}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 435 leaves, 7 steps):

$$-\left(\left(a\,b^2\,n\,\left(5\,a^2+b^2\,(3+2\,n)\right)+\sqrt{-b^2}\,\left(3\,a^4+a^2\,b^2\,\left(6+6\,n-n^2\right)+b^4\,\left(3+4\,n+n^2\right)\right)\right)\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right]\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\right)\Big/\left(16\,b\,\left(a^2+b^2\right)^2\,\left(a-\sqrt{-b^2}\right)\,d\,(1+n)\right)-$$
$$\left(\left(a\,b^2\,n\,\left(5\,a^2+b^2\,(3+2\,n)\right)-\sqrt{-b^2}\,\left(3\,a^4+a^2\,b^2\,\left(6+6\,n-n^2\right)+b^4\,\left(3+4\,n+n^2\right)\right)\right)\,\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\right.$$
$$\left.(a+b\,\text{Tan}[c+d\,x])^{1+n}\right)\Big/\left(16\,b\,\left(a^2+b^2\right)^2\,\left(a+\sqrt{-b^2}\right)\,d\,(1+n)\right)+\frac{\text{Cos}[c+d\,x]^4\,(b+a\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{1+n}}{4\,\left(a^2+b^2\right)\,d}-$$
$$\frac{\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\,\left(b\,\left(a^2\,(7-n)+b^2\,(5+n)\right)+a\,\left(5\,a^2+b^2\,(3+2\,n)\right)\,\text{Tan}[c+d\,x]\right)}{8\,\left(a^2+b^2\right)^2\,d}$$

Result (type 8, 23 leaves):

$$\int \text{Sin}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Problem 85: Unable to integrate problem.

$$\int \text{Sin}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 276 leaves, 6 steps):

$$-\left(\left(a\, b^2\, n+\sqrt{-b^2}\,\left(a^2+b^2\,(1+n)\right)\right)\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right]\,(a+b\,\text{Tan}[c+d\,x])^{1+n}\right)\Big/$$
$$\left(4\, b\,\left(a^2+b^2\right)\left(a-\sqrt{-b^2}\right) d\,(1+n)\right)-\frac{\left(a\, b^2\, n-\sqrt{-b^2}\,\left(a^2+b^2\,(1+n)\right)\right)\text{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\text{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right]\,(a+b\,\text{Tan}[c+d\,x])^{1+n}}{4\, b\,\left(a^2+b^2\right)\left(a+\sqrt{-b^2}\right) d\,(1+n)}-$$
$$\frac{\text{Cos}[c+d\,x]^2\,(b+a\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{1+n}}{2\left(a^2+b^2\right) d}$$

Result (type 8, 23 leaves) :

$$\int \text{Sin}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^n\, dx$$

Test results for the 1328 problems in "4.3.2.1 (a+b tan)^m (c+d tan)^n.m"

- **Problem 17: Result more than twice size of optimal antiderivative.**

$$\int (a+i\, a\,\text{Tan}[c+d\,x])^2\, dx$$

Optimal (type 3, 38 leaves, 2 steps) :

$$2\, a^2\, x-\frac{2\, i\, a^2\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{a^2\,\text{Tan}[c+d\,x]}{d}$$

Result (type 3, 100 leaves) :

$$-\frac{1}{2\, d} a^2\,\text{Sec}[c]\,\text{Sec}[c+d\,x]\,\left(4\,\text{ArcTan}[\text{Tan}[3\, c+d\,x]]\,\text{Cos}[c]\,\text{Cos}[c+d\,x]-\right.$$
$$\left.4\, d\, x\,\text{Cos}[2\, c+d\,x]+\text{Cos}[d\,x]\,\left(-4\, d\, x+i\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\right)+i\,\text{Cos}[2\, c+d\,x]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]+2\,\text{Sin}[d\,x]\right)$$

- **Problem 19: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^2\,(a+i\, a\,\text{Tan}[c+d\,x])^2\, dx$$

Optimal (type 3, 38 leaves, 3 steps) :

$$-2\, a^2\, x-\frac{a^2\,\text{Cot}[c+d\,x]}{d}+\frac{2\, i\, a^2\,\text{Log}[\text{Sin}[c+d\,x]]}{d}$$

Result (type 3, 100 leaves) :

$$\frac{1}{2 d} a^2 \operatorname{Csc}[c] \operatorname{Csc}[c+d x] \left(4 d x \operatorname{Cos}[2 c+d x]+\operatorname{Cos}[d x] \left(-4 d x+i \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]\right)-i \operatorname{Cos}[2 c+d x] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]+2 \operatorname{Sin}[d x]+4 \operatorname{ArcTan}[\operatorname{Tan}[3 c+d x]] \operatorname{Sin}[c] \operatorname{Sin}[c+d x]\right)$$

- **Problem 24: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x]^3 (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 126 leaves, 6 steps):

$$4 i a^3 x+\frac{4 a^3 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{4 i a^3 \operatorname{Tan}[c+d x]}{d}+\frac{2 a^3 \operatorname{Tan}[c+d x]^2}{d}+\frac{4 i a^3 \operatorname{Tan}[c+d x]^3}{3 d}-\frac{11 a^3 \operatorname{Tan}[c+d x]^4}{20 d}-\frac{\operatorname{Tan}[c+d x]^4 \left(a^3+i a^3 \operatorname{Tan}[c+d x]\right)}{5 d}$$

Result (type 3, 296 leaves):

$$\frac{1}{240 d} a^3 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^5 \left(105 \operatorname{Cos}[2 c+3 d x]+150 i d x \operatorname{Cos}[2 c+3 d x]+105 \operatorname{Cos}[4 c+3 d x]+150 i d x \operatorname{Cos}[4 c+3 d x]+30 i d x \operatorname{Cos}[4 c+5 d x]+30 i d x \operatorname{Cos}[6 c+5 d x]+75 \operatorname{Cos}[2 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+75 \operatorname{Cos}[4 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Cos}[4 c+5 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Cos}[6 c+5 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+75 \operatorname{Cos}[d x] \left(3+4 i d x+2 \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+75 \operatorname{Cos}[2 c+d x] \left(3+4 i d x+2 \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)-470 i \operatorname{Sin}[d x]+360 i \operatorname{Sin}[2 c+d x]-280 i \operatorname{Sin}[2 c+3 d x]+135 i \operatorname{Sin}[4 c+3 d x]-83 i \operatorname{Sin}[4 c+5 d x]\right)$$

- **Problem 25: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 90 leaves, 4 steps):

$$-4 a^3 x+\frac{4 i a^3 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{2 a^3 \operatorname{Tan}[c+d x]}{d}-\frac{i a (a+i a \operatorname{Tan}[c+d x])^2}{2 d}-\frac{i (a+i a \operatorname{Tan}[c+d x])^4}{4 a d}$$

Result (type 3, 228 leaves):

$$-\frac{1}{8 d} a^3 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^4 \left(-5 i \operatorname{Cos}[3 c+2 d x]+8 d x \operatorname{Cos}[3 c+2 d x]+2 d x \operatorname{Cos}[3 c+4 d x]+2 d x \operatorname{Cos}[5 c+4 d x]+2 \operatorname{Cos}[c] \left(-4 i+6 d x-3 i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+\operatorname{Cos}[c+2 d x] \left(-5 i+8 d x-4 i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)-4 i \operatorname{Cos}[3 c+2 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-i \operatorname{Cos}[3 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-i \operatorname{Cos}[5 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Sin}[c]-13 \operatorname{Sin}[c+2 d x]+7 \operatorname{Sin}[3 c+2 d x]-5 \operatorname{Sin}[3 c+4 d x]\right)$$

- **Problem 26: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x] (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$-4 i a^3 x-\frac{4 a^3 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{2 i a^3 \operatorname{Tan}[c+d x]}{d}+\frac{a (a+i a \operatorname{Tan}[c+d x])^2}{2 d}+\frac{(a+i a \operatorname{Tan}[c+d x])^3}{3 d}$$

Result (type 3, 178 leaves) :

$$-\frac{1}{12 d} i a^3 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^3 \left(6 d x \operatorname{Cos}[2 c+3 d x]+6 d x \operatorname{Cos}[4 c+3 d x]+9 \operatorname{Cos}[d x] \left(-i+2 d x-i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+9 \operatorname{Cos}[2 c+d x] \left(-i+2 d x-i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)-3 i \operatorname{Cos}[2 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-3 i \operatorname{Cos}[4 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-24 \operatorname{Sin}[d x]+15 \operatorname{Sin}[2 c+d x]-13 \operatorname{Sin}[2 c+3 d x]\right)$$

- **Problem 29: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 69 leaves, 5 steps) :

$$-4 a^3 x+\frac{i a^3 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{3 i a^3 \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{\operatorname{Cot}[c+d x] \left(a^3+i a^3 \operatorname{Tan}[c+d x]\right)}{d}$$

Result (type 3, 144 leaves) :

$$\frac{1}{8 d} a^3 \operatorname{Csc}\left[\frac{c}{2}\right] \operatorname{Csc}[c+d x] \operatorname{Sec}\left[\frac{c}{2}\right] \left(14 d x \operatorname{Cos}[2 c+d x]-i \operatorname{Cos}[2 c+d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+\operatorname{Cos}[d x] \left(-14 d x+i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+3 i \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]\right)-3 i \operatorname{Cos}[2 c+d x] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]+4 \operatorname{Sin}[d x]+12 \operatorname{ArcTan}[\operatorname{Tan}[4 c+d x]] \operatorname{Sin}[c] \operatorname{Sin}[c+d x]\right)$$

- **Problem 31: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^4 (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 101 leaves, 5 steps) :

$$4 a^3 x+\frac{2 a^3 \operatorname{Cot}[c+d x]}{d}-\frac{4 i a^3 \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{i a \operatorname{Cot}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^2}{2 d}-\frac{\operatorname{Cot}[c+d x]^3 (a+i a \operatorname{Tan}[c+d x])^3}{3 d}$$

Result (type 3, 251 leaves) :

$$\frac{1}{24 d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3} a^3 \operatorname{Csc}\left[\frac{c}{2}\right] \operatorname{Csc}[c+d x]^3 \operatorname{Sec}\left[\frac{c}{2}\right] (\operatorname{Cos}[3 d x]+i \operatorname{Sin}[3 d x]) \left(9 i \operatorname{Cos}[2 c+d x]-36 d x \operatorname{Cos}[2 c+d x]-12 d x \operatorname{Cos}[2 c+3 d x]+12 d x \operatorname{Cos}[4 c+3 d x]+9 \operatorname{Cos}[d x] \left(-i+4 d x-i \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]\right)+9 i \operatorname{Cos}[2 c+d x] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]+3 i \operatorname{Cos}[2 c+3 d x] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]-3 i \operatorname{Cos}[4 c+3 d x] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]-24 \operatorname{Sin}[d x]-48 \operatorname{ArcTan}[\operatorname{Tan}[4 c+d x]] \operatorname{Sin}[c] \operatorname{Sin}[c+d x]^3-15 \operatorname{Sin}[2 c+d x]+13 \operatorname{Sin}[2 c+3 d x]\right)$$

- **Problem 32: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^5 (a+i a \operatorname{Tan}[c+d x])^3 \, dx$$

Optimal (type 3, 108 leaves, 6 steps) :

$$4\,i\,a^3\,x+\frac{4\,i\,a^3\,\mathrm{Cot}[c+d\,x]}{d}+\frac{2\,a^3\,\mathrm{Cot}[c+d\,x]^2}{d}-\frac{3\,i\,a^3\,\mathrm{Cot}[c+d\,x]^3}{4\,d}+\frac{4\,a^3\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{\mathrm{Cot}[c+d\,x]^4\,\left(a^3+i\,a^3\,\mathrm{Tan}[c+d\,x]\right)}{4\,d}$$

Result (type 3, 254 leaves):

$$\frac{1}{16\,d}a^3\,\mathrm{Csc}\left[\frac{c}{2}\right]\,\mathrm{Csc}[c+d\,x]^4\,\mathrm{Sec}\left[\frac{c}{2}\right]$$
$$\left(-15\,i\,\mathrm{Cos}[c]+13\,i\,\mathrm{Cos}[c+2\,d\,x]+7\,i\,\mathrm{Cos}[3\,c+2\,d\,x]-5\,i\,\mathrm{Cos}[3\,c+4\,d\,x]+8\,\mathrm{Sin}[c]+12\,i\,d\,x\,\mathrm{Sin}[c]+6\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[c]+\right.$$
$$5\,\mathrm{Sin}[c+2\,d\,x]+8\,i\,d\,x\,\mathrm{Sin}[c+2\,d\,x]+4\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[c+2\,d\,x]-5\,\mathrm{Sin}[3\,c+2\,d\,x]-8\,i\,d\,x\,\mathrm{Sin}[3\,c+2\,d\,x]-4\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]$$
$$\left.\mathrm{Sin}[3\,c+2\,d\,x]-2\,i\,d\,x\,\mathrm{Sin}[3\,c+4\,d\,x]-\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[3\,c+4\,d\,x]+2\,i\,d\,x\,\mathrm{Sin}[5\,c+4\,d\,x]+\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[5\,c+4\,d\,x]\right)$$

Problem 33: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^6\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 126 leaves, 7 steps):

$$-4\,a^3\,x-\frac{4\,a^3\,\mathrm{Cot}[c+d\,x]}{d}+\frac{2\,i\,a^3\,\mathrm{Cot}[c+d\,x]^2}{d}+\frac{4\,a^3\,\mathrm{Cot}[c+d\,x]^3}{3\,d}-$$
$$\frac{11\,i\,a^3\,\mathrm{Cot}[c+d\,x]^4}{20\,d}+\frac{4\,i\,a^3\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{\mathrm{Cot}[c+d\,x]^5\,\left(a^3+i\,a^3\,\mathrm{Tan}[c+d\,x]\right)}{5\,d}$$

Result (type 3, 359 leaves):

$$\frac{1}{240\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3}$$
$$a^3\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^5\,(\mathrm{Cos}[3\,d\,x]+i\,\mathrm{Sin}[3\,d\,x])\,\left(-225\,i\,\mathrm{Cos}[2\,c+d\,x]+600\,d\,x\,\mathrm{Cos}[2\,c+d\,x]-105\,i\,\mathrm{Cos}[2\,c+3\,d\,x]+\right.$$
$$300\,d\,x\,\mathrm{Cos}[2\,c+3\,d\,x]+105\,i\,\mathrm{Cos}[4\,c+3\,d\,x]-300\,d\,x\,\mathrm{Cos}[4\,c+3\,d\,x]-60\,d\,x\,\mathrm{Cos}[4\,c+5\,d\,x]+60\,d\,x\,\mathrm{Cos}[6\,c+5\,d\,x]-$$
$$75\,\mathrm{Cos}[d\,x]\,\left(-3\,i+8\,d\,x-2\,i\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\right)-150\,i\,\mathrm{Cos}[2\,c+d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]-75\,i\,\mathrm{Cos}[2\,c+3\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]+$$
$$75\,i\,\mathrm{Cos}[4\,c+3\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]+15\,i\,\mathrm{Cos}[4\,c+5\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]-15\,i\,\mathrm{Cos}[6\,c+5\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]+470\,\mathrm{Sin}[d\,x]+$$
$$\left.960\,\mathrm{ArcTan}[\mathrm{Tan}[4\,c+d\,x]]\,\mathrm{Sin}[c]\,\mathrm{Sin}[c+d\,x]^5+360\,\mathrm{Sin}[2\,c+d\,x]-280\,\mathrm{Sin}[2\,c+3\,d\,x]-135\,\mathrm{Sin}[4\,c+3\,d\,x]+83\,\mathrm{Sin}[4\,c+5\,d\,x]\right)$$

Problem 34: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^4\,dx$$

Optimal (type 3, 160 leaves, 7 steps):

$$8\,i\,a^4\,x+\frac{8\,a^4\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{8\,i\,a^4\,\mathrm{Tan}[c+d\,x]}{d}+\frac{4\,a^4\,\mathrm{Tan}[c+d\,x]^2}{d}+\frac{8\,i\,a^4\,\mathrm{Tan}[c+d\,x]^3}{3\,d}-$$
$$\frac{67\,a^4\,\mathrm{Tan}[c+d\,x]^4}{60\,d}-\frac{\mathrm{Tan}[c+d\,x]^4\,\left(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\right)^2}{6\,d}-\frac{7\,\mathrm{Tan}[c+d\,x]^4\,\left(a^4+i\,a^4\,\mathrm{Tan}[c+d\,x]\right)}{15\,d}$$

Result (type 3, 349 leaves):

$$\frac{1}{240\,d} a^4 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^6 \left(345 \operatorname{Cos}[3 c+2 d x]+450 i d x \operatorname{Cos}[3 c+2 d x]+120 \operatorname{Cos}[3 c+4 d x]+180 i d x \operatorname{Cos}[3 c+4 d x]+120 \operatorname{Cos}[5 c+4 d x]+180 i d x \operatorname{Cos}[5 c+4 d x]+30 i d x \operatorname{Cos}[5 c+6 d x]+30 i d x \operatorname{Cos}[7 c+6 d x]+225 \operatorname{Cos}[3 c+2 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+90 \operatorname{Cos}[3 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+90 \operatorname{Cos}[5 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Cos}[5 c+6 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Cos}[7 c+6 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+15 \operatorname{Cos}[c+2 d x] \left(23+30 i d x+15 \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+10 \operatorname{Cos}[c] \left(49+60 i d x+30 \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+860 i \operatorname{Sin}[c]-780 i \operatorname{Sin}[c+2 d x]+510 i \operatorname{Sin}[3 c+2 d x]-366 i \operatorname{Sin}[3 c+4 d x]+150 i \operatorname{Sin}[5 c+4 d x]-86 i \operatorname{Sin}[5 c+6 d x]\right)$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Tan}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 116 leaves, 5 steps):

$$-8 a^4 x+\frac{8 i a^4 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{4 a^4 \operatorname{Tan}[c+d x]}{d}-\frac{i a (a+i a \operatorname{Tan}[c+d x])^3}{3 d}-\frac{i (a+i a \operatorname{Tan}[c+d x])^5}{5 a d}-\frac{i \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)^2}{d}$$

Result (type 3, 294 leaves):

$$-\frac{1}{120\,d} a^4 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^5 \left(-90 i \operatorname{Cos}[2 c+3 d x]+150 d x \operatorname{Cos}[2 c+3 d x]-90 i \operatorname{Cos}[4 c+3 d x]+150 d x \operatorname{Cos}[4 c+3 d x]+30 d x \operatorname{Cos}[4 c+5 d x]+30 d x \operatorname{Cos}[6 c+5 d x]+30 \operatorname{Cos}[d x] \left(-7 i+10 d x-5 i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+30 \operatorname{Cos}[2 c+d x] \left(-7 i+10 d x-5 i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)-75 i \operatorname{Cos}[2 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-75 i \operatorname{Cos}[4 c+3 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-15 i \operatorname{Cos}[4 c+5 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-15 i \operatorname{Cos}[6 c+5 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-445 \operatorname{Sin}[d x]+345 \operatorname{Sin}[2 c+d x]-275 \operatorname{Sin}[2 c+3 d x]+120 \operatorname{Sin}[4 c+3 d x]-79 \operatorname{Sin}[4 c+5 d x]\right)$$

Problem 36: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Tan}[c+d x] (a+i a \operatorname{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 108 leaves, 5 steps):

$$-8 i a^4 x-\frac{8 a^4 \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{4 i a^4 \operatorname{Tan}[c+d x]}{d}+\frac{a (a+i a \operatorname{Tan}[c+d x])^3}{3 d}+\frac{(a+i a \operatorname{Tan}[c+d x])^4}{4 d}+\frac{\left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)^2}{d}$$

Result (type 3, 231 leaves):

$$-\frac{1}{12\,d} i a^4 \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^4 \left(-12 i \operatorname{Cos}[3 c+2 d x]+24 d x \operatorname{Cos}[3 c+2 d x]+6 d x \operatorname{Cos}[3 c+4 d x]+6 d x \operatorname{Cos}[5 c+4 d x]+12 \operatorname{Cos}[c+2 d x] \left(-i+2 d x-i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)+3 \operatorname{Cos}[c] \left(-7 i+12 d x-6 i \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]\right)-12 i \operatorname{Cos}[3 c+2 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-3 i \operatorname{Cos}[3 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]-3 i \operatorname{Cos}[5 c+4 d x] \operatorname{Log}\left[\operatorname{Cos}[c+d x]^2\right]+42 \operatorname{Sin}[c]-38 \operatorname{Sin}[c+2 d x]+18 \operatorname{Sin}[3 c+2 d x]-14 \operatorname{Sin}[3 c+4 d x]\right)$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 71 leaves, 5 steps):

$$-8 a^4 x+\frac{4 i a^4 \text{Log}[\text{Cos}[c+d x]]}{d}+\frac{4 i a^4 \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{\text{Cot}[c+d x] \left(a^2+i a^2 \text{Tan}[c+d x]\right)^2}{d}$$

Result (type 3, 151 leaves):

$$\frac{1}{4 d} a^4 \text{Csc}[c] \text{Csc}[c+d x] \text{Sec}[c] \text{Sec}[c+d x] \left(6 d x \text{Cos}[4 c+2 d x]-i \text{Cos}[4 c+2 d x] \text{Log}\left[\text{Cos}[c+d x]^2\right]+\text{Cos}[2 d x] \left(-6 d x+i \text{Log}\left[\text{Cos}[c+d x]^2\right]+i \text{Log}\left[\text{Sin}[c+d x]^2\right]\right)-i \text{Cos}[4 c+2 d x] \text{Log}\left[\text{Sin}[c+d x]^2\right]+2 \text{Sin}[2 d x]+4 \text{ArcTan}[\text{Tan}[5 c+d x]] \text{Sin}[2 c] \text{Sin}[2 (c+d x)]\right)$$

Problem 41: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4 (a+i a \text{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 103 leaves, 5 steps):

$$8 a^4 x+\frac{4 a^4 \text{Cot}[c+d x]}{d}-\frac{8 i a^4 \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{a \text{Cot}[c+d x]^3 (a+i a \text{Tan}[c+d x])^3}{3 d}-\frac{i \text{Cot}[c+d x]^2 \left(a^2+i a^2 \text{Tan}[c+d x]\right)^2}{d}$$

Result (type 3, 240 leaves):

$$\frac{1}{6 d (\text{Cos}[d x]+i \text{Sin}[d x])^4} a^4 \text{Csc}[c] \text{Csc}[c+d x]^3 (\text{Cos}[4 d x]+i \text{Sin}[4 d x]) \left(6 i \text{Cos}[2 c+d x]-36 d x \text{Cos}[2 c+d x]-12 d x \text{Cos}[2 c+3 d x]+12 d x \text{Cos}[4 c+3 d x]+\text{Cos}[d x] \left(-6 i+36 d x-9 i \text{Log}\left[\text{Sin}[c+d x]^2\right]\right)+9 i \text{Cos}[2 c+d x] \text{Log}\left[\text{Sin}[c+d x]^2\right]+3 i \text{Cos}[2 c+3 d x] \text{Log}\left[\text{Sin}[c+d x]^2\right]-3 i \text{Cos}[4 c+3 d x] \text{Log}\left[\text{Sin}[c+d x]^2\right]-21 \text{Sin}[d x]-48 \text{ArcTan}[\text{Tan}[5 c+d x]] \text{Sin}[c] \text{Sin}[c+d x]^3-12 \text{Sin}[2 c+d x]+11 \text{Sin}[2 c+3 d x]\right)$$

Problem 43: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^6 (a+i a \text{Tan}[c+d x])^4 \, dx$$

Optimal (type 3, 142 leaves, 7 steps):

$$-8 a^4 x-\frac{8 a^4 \text{Cot}[c+d x]}{d}+\frac{4 i a^4 \text{Cot}[c+d x]^2}{d}+\frac{23 a^4 \text{Cot}[c+d x]^3}{15 d}+\frac{8 i a^4 \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{\text{Cot}[c+d x]^5 \left(a^2+i a^2 \text{Tan}[c+d x]\right)^2}{5 d}-\frac{3 i \text{Cot}[c+d x]^4 \left(a^4+i a^4 \text{Tan}[c+d x]\right)}{5 d}$$

Result (type 3, 740 leaves):

$$a^4 \left(\frac{(\text{i} + \text{Cot}[c + d x])^4 \,\text{Csc}[c] \,(-\text{Cos}[c] - 5\,\text{i}\,\text{Sin}[c]) \left(\frac{1}{5}\text{Cos}[4 c] - \frac{1}{5}\text{i}\,\text{Sin}[4 c]\right)}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} + \right.$$

$$\frac{(\text{i} + \text{Cot}[c + d x])^4 \,\text{Csc}[c] \,\text{Csc}[c + d x] \left(\frac{1}{5}\text{Cos}[4 c] - \frac{1}{5}\text{i}\,\text{Sin}[4 c]\right) \text{Sin}[d x]}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} +$$

$$\frac{(\text{i} + \text{Cot}[c + d x])^4 \,\text{Csc}[c] \left(-\frac{41}{15}\text{Cos}[4 c] + \frac{41}{15}\text{i}\,\text{Sin}[4 c]\right) \text{Sin}[d x] \,\text{Sin}[c + d x]}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} +$$

$$\frac{(\text{i} + \text{Cot}[c + d x])^4 \,\text{Csc}[c] \,(41\,\text{Cos}[c] + 90\,\text{i}\,\text{Sin}[c]) \left(\frac{1}{15}\text{Cos}[4 c] - \frac{1}{15}\text{i}\,\text{Sin}[4 c]\right) \text{Sin}[c + d x]^2}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} +$$

$$\frac{(\text{i} + \text{Cot}[c + d x])^4 \,\text{Csc}[c] \left(\frac{158}{15}\text{Cos}[4 c] - \frac{158}{15}\text{i}\,\text{Sin}[4 c]\right) \text{Sin}[d x] \,\text{Sin}[c + d x]^3}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} - \frac{8\,x\,\text{Cos}[4 c]\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Sin}[c + d x]^4}{(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} +$$

$$\frac{8\,\text{ArcTan}[\text{Tan}[5 c + d x]]\,\text{Cos}[4 c]\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Sin}[c + d x]^4}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} + \frac{4\,\text{i}\,\text{Cos}[4 c]\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}[c + d x]^4}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} +$$

$$\frac{1}{(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} x\,(\text{i} + \text{Cot}[c + d x])^4 \left(-40\,\text{Cos}[c]^4 - 8\,\text{i}\,\text{Cos}[c]^4\,\text{Cot}[c] + 80\,\text{i}\,\text{Cos}[c]^3\,\text{Sin}[c] + 80\,\text{Cos}[c]^2\,\text{Sin}[c]^2 - \right.$$

$$\left. 40\,\text{i}\,\text{Cos}[c]\,\text{Sin}[c]^3 - 8\,\text{Sin}[c]^4 + \text{i}\,\text{Cot}[c]\,(8\,\text{Cos}[4 c] - 8\,\text{i}\,\text{Sin}[4 c])\right) \text{Sin}[c + d x]^4 + \frac{8\,\text{i}\,x\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Sin}[4 c]\,\text{Sin}[c + d x]^4}{(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} -$$

$$\left. \frac{8\,\text{i}\,\text{ArcTan}[\text{Tan}[5 c + d x]]\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Sin}[4 c]\,\text{Sin}[c + d x]^4}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} + \frac{4\,(\text{i} + \text{Cot}[c + d x])^4 \,\text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}[4 c]\,\text{Sin}[c + d x]^4}{d\,(\text{Cos}[d x] + \text{i}\,\text{Sin}[d x])^4} \right)$$

- **Problem 44: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c + d x]^7 \,(a + \text{i}\,a\,\text{Tan}[c + d x])^4 \,dx$$

Optimal (type 3, 162 leaves, 8 steps):

$$-8\,\text{i}\,a^4\,x - \frac{8\,\text{i}\,a^4\,\text{Cot}[c + d x]}{d} - \frac{4\,a^4\,\text{Cot}[c + d x]^2}{d} + \frac{8\,\text{i}\,a^4\,\text{Cot}[c + d x]^3}{3 d} + \frac{67\,a^4\,\text{Cot}[c + d x]^4}{60 d} -$$

$$\frac{8\,a^4\,\text{Log}[\text{Sin}[c + d x]]}{d} - \frac{\text{Cot}[c + d x]^6 \left(a^2 + \text{i}\,a^2\,\text{Tan}[c + d x]\right)^2}{6 d} - \frac{7\,\text{i}\,\text{Cot}[c + d x]^5 \left(a^4 + \text{i}\,a^4\,\text{Tan}[c + d x]\right)}{15 d}$$

Result (type 3, 363 leaves):

$$\frac{1}{240\,d}a^4\,\text{Csc}[c]\,\text{Csc}[c+d\,x]^6\Big(860\,i\,\text{Cos}[c]-780\,i\,\text{Cos}[c+2\,d\,x]-510\,i\,\text{Cos}[3\,c+2\,d\,x]+366\,i\,\text{Cos}[3\,c+4\,d\,x]+150\,i\,\text{Cos}[5\,c+4\,d\,x]-86\,i\,\text{Cos}[5\,c+6\,d\,x]-490\,\text{Sin}[c]-600\,i\,d\,x\,\text{Sin}[c]-300\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[c]-345\,\text{Sin}[c+2\,d\,x]-450\,i\,d\,x\,\text{Sin}[c+2\,d\,x]-225\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[c+2\,d\,x]+345\,\text{Sin}[3\,c+2\,d\,x]+450\,i\,d\,x\,\text{Sin}[3\,c+2\,d\,x]+225\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[3\,c+2\,d\,x]+120\,\text{Sin}[3\,c+4\,d\,x]+180\,i\,d\,x\,\text{Sin}[3\,c+4\,d\,x]+90\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[3\,c+4\,d\,x]-120\,\text{Sin}[5\,c+4\,d\,x]-180\,i\,d\,x\,\text{Sin}[5\,c+4\,d\,x]-90\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[5\,c+4\,d\,x]-30\,i\,d\,x\,\text{Sin}[5\,c+6\,d\,x]-15\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[5\,c+6\,d\,x]+30\,i\,d\,x\,\text{Sin}[7\,c+6\,d\,x]+15\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[7\,c+6\,d\,x]\Big)$$

- **Problem 45: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^6}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$\frac{5\,x}{2\,a}+\frac{3\,i\,\text{Log}[\text{Cos}[c+d\,x]]}{a\,d}-\frac{5\,\text{Tan}[c+d\,x]}{2\,a\,d}+\frac{3\,i\,\text{Tan}[c+d\,x]^2}{2\,a\,d}+\frac{5\,\text{Tan}[c+d\,x]^3}{6\,a\,d}-\frac{3\,i\,\text{Tan}[c+d\,x]^4}{4\,a\,d}-\frac{\text{Tan}[c+d\,x]^5}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 840 leaves):

$$\frac{5\,x\,\text{Cos}[c]\,\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{2\,(a+i\,a\,\text{Tan}[c+d\,x])}+\frac{3\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Cos}[c]\,\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{d\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{3\,i\,\text{Cos}[c]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])}+\frac{\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]\,\left(-\frac{1}{4}\,i\,\text{Cos}[c]-\frac{\text{Sin}[c]}{4}\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{d\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{\text{Sec}[c+d\,x]^3\left(\frac{1}{6}\,i\,\text{Cos}[c]-\frac{\text{Sin}[c]}{6}\right)(9\,\text{Cos}[c]-2\,i\,\text{Sin}[c])\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(a+i\,a\,\text{Tan}[c+d\,x])}+\frac{\text{Sec}[c+d\,x]^5\left(-\frac{1}{4}\,i\,\text{Cos}[c]+\frac{\text{Sin}[c]}{4}\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{d\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{5\,i\,x\,\text{Sec}[c+d\,x]\,\text{Sin}[c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{2\,(a+i\,a\,\text{Tan}[c+d\,x])}+\frac{3\,i\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{d\,(a+i\,a\,\text{Tan}[c+d\,x])}-$$
$$\frac{3\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])}+\frac{\text{Sec}[c+d\,x]\left(-\frac{\text{Cos}[c]}{4}+\frac{1}{4}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\text{Sin}[2\,d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{7\,i\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(-\text{Cos}[c-d\,x]+\text{Cos}[c+d\,x]-i\,\text{Sin}[c-d\,x]+i\,\text{Sin}[c+d\,x])}{6\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(a+i\,a\,\text{Tan}[c+d\,x])}-$$
$$\frac{i\,\text{Sec}[c+d\,x]^4\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(-\text{Cos}[c-d\,x]+\text{Cos}[c+d\,x]-i\,\text{Sin}[c-d\,x]+i\,\text{Sin}[c+d\,x])}{6\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{x\,\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(-3\,\text{Sec}[c]-i\,(3\,\text{Cos}[c]+3\,i\,\text{Sin}[c])\,\text{Tan}[c])}{a+i\,a\,\text{Tan}[c+d\,x]}$$

Problem 46: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^5}{a+i a \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 109 leaves, 5 steps):

$$-\frac{5 i x}{2 a}+\frac{2 \text{Log}[\text{Cos}[c+d x]]}{a d}+\frac{5 i \text{Tan}[c+d x]}{2 a d}+\frac{\text{Tan}[c+d x]^2}{a d}-\frac{5 i \text{Tan}[c+d x]^3}{6 a d}-\frac{\text{Tan}[c+d x]^4}{2 d (a+i a \text{Tan}[c+d x])}$$

Result (type 3, 775 leaves):

$$-\frac{5 i x \text{Cos}[c] \text{Sec}[c+d x] (\text{Cos}[d x]+i \text{Sin}[d x])}{2 (a+i a \text{Tan}[c+d x])}-\frac{2 i \text{ArcTan}[\text{Tan}[d x]] \text{Cos}[c] \text{Sec}[c+d x] (\text{Cos}[d x]+i \text{Sin}[d x])}{d (a+i a \text{Tan}[c+d x])}+$$
$$\frac{\text{Cos}[c] \text{Log}\left[\text{Cos}[c+d x]^2\right] \text{Sec}[c+d x] (\text{Cos}[d x]+i \text{Sin}[d x])}{d (a+i a \text{Tan}[c+d x])}+\frac{\text{Cos}[2 d x] \text{Sec}[c+d x] \left(-\frac{\text{Cos}[c]}{4}+\frac{1}{4} i \text{Sin}[c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])}{d (a+i a \text{Tan}[c+d x])}+$$
$$\frac{\text{Sec}[c+d x]^3 \left(\frac{\text{Cos}[c]}{6}+\frac{1}{6} i \text{Sin}[c]\right) (3 \text{Cos}[c]-2 i \text{Sin}[c]) (\text{Cos}[d x]+i \text{Sin}[d x])}{d \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) (a+i a \text{Tan}[c+d x])}+$$
$$\frac{5 x \text{Sec}[c+d x] \text{Sin}[c] (\text{Cos}[d x]+i \text{Sin}[d x])}{2 (a+i a \text{Tan}[c+d x])}+\frac{2 \text{ArcTan}[\text{Tan}[d x]] \text{Sec}[c+d x] \text{Sin}[c] (\text{Cos}[d x]+i \text{Sin}[d x])}{d (a+i a \text{Tan}[c+d x])}+$$
$$\frac{i \text{Log}\left[\text{Cos}[c+d x]^2\right] \text{Sec}[c+d x] \text{Sin}[c] (\text{Cos}[d x]+i \text{Sin}[d x])}{d (a+i a \text{Tan}[c+d x])}+\frac{\text{Sec}[c+d x] \left(\frac{1}{4} i \text{Cos}[c]+\frac{\text{Sin}[c]}{4}\right) (\text{Cos}[d x]+i \text{Sin}[d x]) \text{Sin}[2 d x]}{d (a+i a \text{Tan}[c+d x])}+$$
$$\frac{\text{Sec}[c+d x]^4 (\text{Cos}[d x]+i \text{Sin}[d x]) (\text{Cos}[c-d x]-\text{Cos}[c+d x]+i \text{Sin}[c-d x]-i \text{Sin}[c+d x])}{6 d \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) (a+i a \text{Tan}[c+d x])}+$$
$$\frac{7 \text{Sec}[c+d x]^2 (\text{Cos}[d x]+i \text{Sin}[d x]) (-\text{Cos}[c-d x]+\text{Cos}[c+d x]-i \text{Sin}[c-d x]+i \text{Sin}[c+d x])}{6 d \left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right) \left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right) (a+i a \text{Tan}[c+d x])}+$$
$$\frac{x \text{Sec}[c+d x] (\text{Cos}[d x]+i \text{Sin}[d x]) (2 i \text{Sec}[c]+(-2 \text{Cos}[c]-2 i \text{Sin}[c]) \text{Tan}[c])}{a+i a \text{Tan}[c+d x]}$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^4}{a+i a \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 90 leaves, 4 steps):

$$-\frac{3 x}{2 a}-\frac{2 i \text{Log}[\text{Cos}[c+d x]]}{a d}+\frac{3 \text{Tan}[c+d x]}{2 a d}-\frac{i \text{Tan}[c+d x]^2}{a d}-\frac{\text{Tan}[c+d x]^3}{2 d (a+i a \text{Tan}[c+d x])}$$

Result (type 3, 196 leaves):

$$\frac{1}{4\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}\mathrm{Cos}[c]\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\left(-6\,d\,x-4\,i\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]+8\,d\,x\,\mathrm{Sec}[c]^2-2\,i\,\mathrm{Sec}[c+d\,x]^2+4\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\mathrm{Sin}[d\,x]+\mathrm{Sin}[2\,d\,x]+\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,(-8-8\,i\,\mathrm{Tan}[c])+2\,i\,d\,x\,\mathrm{Tan}[c]+4\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\mathrm{Tan}[c]+2\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Tan}[c]+4\,i\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\mathrm{Sin}[d\,x]\,\mathrm{Tan}[c]-i\,\mathrm{Sin}[2\,d\,x]\,\mathrm{Tan}[c]-8\,d\,x\,\mathrm{Tan}[c]^2+\mathrm{Cos}[2\,d\,x]\,(i+\mathrm{Tan}[c])\right)$$

- **Problem 48: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Tan}[c+d\,x]^3}{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 74 leaves, 3 steps):

$$\frac{3\,i\,x}{2\,a}-\frac{\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{a\,d}-\frac{3\,i\,\mathrm{Tan}[c+d\,x]}{2\,a\,d}-\frac{\mathrm{Tan}[c+d\,x]^2}{2\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 174 leaves):

$$-\frac{1}{4\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}i\,\mathrm{Cos}[c]\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\left(-6\,d\,x-2\,i\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]+4\,d\,x\,\mathrm{Sec}[c]^2+4\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\mathrm{Sin}[d\,x]+\mathrm{Sin}[2\,d\,x]+\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,(-4-4\,i\,\mathrm{Tan}[c])-2\,i\,d\,x\,\mathrm{Tan}[c]+2\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\mathrm{Tan}[c]+4\,i\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\mathrm{Sin}[d\,x]\,\mathrm{Tan}[c]-i\,\mathrm{Sin}[2\,d\,x]\,\mathrm{Tan}[c]-4\,d\,x\,\mathrm{Tan}[c]^2+\mathrm{Cos}[2\,d\,x]\,(i+\mathrm{Tan}[c])\right)$$

- **Problem 53: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[c+d\,x]^2}{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 70 leaves, 4 steps):

$$-\frac{3\,x}{2\,a}-\frac{3\,\mathrm{Cot}[c+d\,x]}{2\,a\,d}-\frac{i\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a\,d}+\frac{\mathrm{Cot}[c+d\,x]}{2\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 286 leaves):

$$\frac{1}{32\,a\,d\,(-i+\mathrm{Tan}[c+d\,x])}\mathrm{Csc}\left[\frac{c}{2}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}\left[\frac{c}{2}\right]\mathrm{Sec}[c+d\,x]\left(8\,\mathrm{Cos}[c]-9\,\mathrm{Cos}[c+2\,d\,x]+2\,i\,d\,x\,\mathrm{Cos}[c+2\,d\,x]+\mathrm{Cos}[3\,c+2\,d\,x]-2\,i\,d\,x\,\mathrm{Cos}[3\,c+2\,d\,x]-2\,\mathrm{Cos}[c+2\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]+2\,\mathrm{Cos}[3\,c+2\,d\,x]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]+10\,i\,\mathrm{Sin}[c]-4\,d\,x\,\mathrm{Sin}[c]-4\,i\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\mathrm{Sin}[c]+16\,i\,\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,\mathrm{Sin}[c]\,(\mathrm{Cos}[c+d\,x]+i\,\mathrm{Sin}[c+d\,x])\,\mathrm{Sin}[c+d\,x]-7\,i\,\mathrm{Sin}[c+2\,d\,x]-2\,d\,x\,\mathrm{Sin}[c+2\,d\,x]-2\,i\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\mathrm{Sin}[c+2\,d\,x]-i\,\mathrm{Sin}[3\,c+2\,d\,x]+2\,d\,x\,\mathrm{Sin}[3\,c+2\,d\,x]+2\,i\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\mathrm{Sin}[3\,c+2\,d\,x]\right)$$

- **Problem 54: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[c+d\,x]^3}{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$\frac{3\,i\,x}{2\,a}+\frac{3\,i\,\text{Cot}[c+d\,x]}{2\,a\,d}-\frac{\text{Cot}[c+d\,x]^2}{a\,d}-\frac{2\,\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}+\frac{\text{Cot}[c+d\,x]^2}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 414 leaves):

$$\frac{1}{64\,a\,d\,(-i+\text{Tan}[c+d\,x])}\text{Csc}\left[\frac{c}{2}\right]\text{Csc}[c+d\,x]^2\,\text{Sec}\left[\frac{c}{2}\right]\text{Sec}[c+d\,x]\,\Big(-3\,\text{Cos}[2\,c+d\,x]+6\,i\,d\,x\,\text{Cos}[2\,c+d\,x]+7\,\text{Cos}[2\,c+3\,d\,x]+2\,i\,d\,x\,\text{Cos}[2\,c+3\,d\,x]+\text{Cos}[4\,c+3\,d\,x]-2\,i\,d\,x\,\text{Cos}[4\,c+3\,d\,x]+\text{Cos}[d\,x]\,\Big(-5-6\,i\,d\,x-12\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\Big)+12\,\text{Cos}[2\,c+d\,x]\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]+4\,\text{Cos}[2\,c+3\,d\,x]\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]-4\,\text{Cos}[4\,c+3\,d\,x]\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]-25\,i\,\text{Sin}[d\,x]+2\,d\,x\,\text{Sin}[d\,x]-4\,i\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[d\,x]+64\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sin}[c]\,(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x])\,\text{Sin}[c+d\,x]^2+i\,\text{Sin}[2\,c+d\,x]-2\,d\,x\,\text{Sin}[2\,c+d\,x]+4\,i\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[2\,c+d\,x]+9\,i\,\text{Sin}[2\,c+3\,d\,x]-2\,d\,x\,\text{Sin}[2\,c+3\,d\,x]+4\,i\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[2\,c+3\,d\,x]-i\,\text{Sin}[4\,c+3\,d\,x]+2\,d\,x\,\text{Sin}[4\,c+3\,d\,x]-4\,i\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sin}[4\,c+3\,d\,x]\Big)$$

- **Problem 55: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^4}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 108 leaves, 6 steps):

$$\frac{5\,x}{2\,a}+\frac{5\,\text{Cot}[c+d\,x]}{2\,a\,d}+\frac{i\,\text{Cot}[c+d\,x]^2}{a\,d}-\frac{5\,\text{Cot}[c+d\,x]^3}{6\,a\,d}+\frac{2\,i\,\text{Log}[\text{Sin}[c+d\,x]]}{a\,d}+\frac{\text{Cot}[c+d\,x]^3}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 365 leaves):

$$\frac{1}{12\,a\,d\,(-i+\text{Tan}[c+d\,x])}\text{Csc}[c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\Big(14\,\text{Csc}[c+d\,x]-28\,\text{Cos}[c-d\,x]\,\text{Csc}[2\,(c+d\,x)]+14\,i\,\text{Sec}[c+d\,x]-24\,d\,x\,\text{Sec}[c+d\,x]+24\,d\,x\,\text{Cos}[c]^2\,\text{Sec}[c+d\,x]+3\,\text{Cos}[c]\,\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]+30\,d\,x\,\text{Sec}[c+d\,x]\,\text{Sin}[c]^2-3\,i\,\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]^2+12\,i\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]^2+24\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]\,(-i\,\text{Cos}[c]+\text{Sin}[c])+2\,\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]\,(\text{Cos}[c]+i\,\text{Sin}[c])\,(i\,\text{Cos}[c]+2\,\text{Sin}[c])-3\,i\,d\,x\,\text{Sec}[c+d\,x]\,\text{Sin}[2\,c]+6\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\,\text{Sec}[c+d\,x]\,\text{Sin}[2\,c]-3\,i\,\text{Cos}[c]\,\text{Sec}[c+d\,x]\,\text{Sin}[c]\,\text{Sin}[2\,d\,x]-3\,\text{Sec}[c+d\,x]\,\text{Sin}[c]^2\,\text{Sin}[2\,d\,x]-28\,i\,\text{Csc}[2\,(c+d\,x)]\,\text{Sin}[c-d\,x]+2\,\text{Csc}[c+d\,x]^3\,(-1+\text{Cos}[c-d\,x]\,\text{Sec}[c+d\,x]+i\,\text{Sec}[c+d\,x]\,\text{Sin}[c-d\,x])\Big)$$

- **Problem 56: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^6}{(a+i\,a\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 142 leaves, 6 steps):

$$-\frac{25\,x}{4\,a^2}-\frac{6\,i\,\text{Log}[\text{Cos}[c+d\,x]]}{a^2\,d}+\frac{25\,\text{Tan}[c+d\,x]}{4\,a^2\,d}-\frac{3\,i\,\text{Tan}[c+d\,x]^2}{a^2\,d}-\frac{25\,\text{Tan}[c+d\,x]^3}{12\,a^2\,d}+\frac{3\,i\,\text{Tan}[c+d\,x]^4}{2\,a^2\,d\,(1+i\,\text{Tan}[c+d\,x])}-\frac{\text{Tan}[c+d\,x]^5}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}$$

Result (type 3, 882 leaves):

$$-\frac{25\,x\,\text{Cos}[2\,c]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{4\,(a+i\,a\,\text{Tan}[c+d\,x])^2}-\frac{6\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Cos}[2\,c]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{5\,i\,\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}-\frac{3\,i\,\text{Cos}[2\,c]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\text{Cos}[4\,d\,x]\,\text{Sec}[c+d\,x]^2\,\left(-\frac{1}{16}\,i\,\text{Cos}[2\,c]-\frac{1}{16}\,\text{Sin}[2\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\text{Sec}[c]\,\text{Sec}[c+d\,x]^4\,(3\,\text{Cos}[c]-i\,\text{Sin}[c])\,\left(-\frac{1}{3}\,i\,\text{Cos}[2\,c]+\frac{1}{3}\,\text{Sin}[2\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}-$$

$$\frac{25\,i\,x\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{4\,(a+i\,a\,\text{Tan}[c+d\,x])^2}-\frac{6\,i\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{3\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+\frac{5\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,\text{Sin}[2\,d\,x]}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\text{Sec}[c+d\,x]^2\,\left(-\frac{1}{16}\,\text{Cos}[2\,c]+\frac{1}{16}\,i\,\text{Sin}[2\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,\text{Sin}[4\,d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}-\frac{1}{6\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}$$

$$13\,i\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(-\text{Cos}[2\,c-d\,x]+\text{Cos}[2\,c+d\,x]-i\,\text{Sin}[2\,c-d\,x]+i\,\text{Sin}[2\,c+d\,x])+$$

$$\frac{1}{6\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}\,i\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^5\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(-\text{Cos}[2\,c-d\,x]+\text{Cos}[2\,c+d\,x]-i\,\text{Sin}[2\,c-d\,x]+i\,\text{Sin}[2\,c+d\,x])+$$

$$\frac{x\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(6+6\,i\,\text{Tan}[c]+i\,(6\,\text{Cos}[2\,c]+6\,i\,\text{Sin}[2\,c])\,\text{Tan}[c])}{(a+i\,a\,\text{Tan}[c+d\,x])^2}$$

- **Problem 57: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^5}{(a+i\,a\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 124 leaves, 5 steps):

$$\frac{15\,i\,x}{4\,a^2}-\frac{4\,\text{Log}[\text{Cos}[c+d\,x]]}{a^2\,d}-\frac{15\,i\,\text{Tan}[c+d\,x]}{4\,a^2\,d}-\frac{2\,\text{Tan}[c+d\,x]^2}{a^2\,d}+\frac{5\,i\,\text{Tan}[c+d\,x]^3}{4\,a^2\,d\,(1+i\,\text{Tan}[c+d\,x])}-\frac{\text{Tan}[c+d\,x]^4}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^2}$$

Result (type 3, 300 leaves):

$$\frac{1}{16\,a^2\,d\,(-i+\text{Tan}[c+d\,x])^2}\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2$$
$$\Big(64\,i\,d\,x-16\,\text{Cos}[2\,d\,x]-16\,\text{Cos}[2\,c-d\,x]\,\text{Sec}[c]\,\text{Sec}[c+d\,x]+16\,\text{Cos}[2\,c+d\,x]\,\text{Sec}[c]\,\text{Sec}[c+d\,x]-128\,i\,d\,x\,\text{Sin}[c]^2+60\,d\,x\,\text{Sin}[2\,c]-$$
$$i\,\text{Cos}[4\,d\,x]\,\text{Sin}[2\,c]+32\,i\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}[2\,c]+8\,i\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,c]+64\,\text{ArcTan}[\text{Tan}[d\,x]]\,(-i\,\text{Cos}[2\,c]+\text{Sin}[2\,c])+$$
$$16\,i\,\text{Sin}[2\,d\,x]-\text{Sin}[2\,c]\,\text{Sin}[4\,d\,x]-16\,i\,\text{Sec}[c]\,\text{Sec}[c+d\,x]\,\text{Sin}[2\,c-d\,x]+16\,i\,\text{Sec}[c]\,\text{Sec}[c+d\,x]\,\text{Sin}[2\,c+d\,x]-$$
$$64\,d\,x\,\text{Tan}[c]+\text{Cos}[2\,c]\,\left(-60\,i\,d\,x+\text{Cos}[4\,d\,x]+32\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]+8\,\text{Sec}[c+d\,x]^2-i\,\text{Sin}[4\,d\,x]-64\,d\,x\,\text{Tan}[c]\right)\Big)$$

Problem 58: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^4}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 104 leaves, 4 steps):

$$\frac{9 x}{4 a^2}+\frac{2 i \text{Log}[\text{Cos}[c+d x]]}{a^2 d}-\frac{9 \text{Tan}[c+d x]}{4 a^2 d}+\frac{i \text{Tan}[c+d x]^2}{a^2 d (1+i \text{Tan}[c+d x])}-\frac{\text{Tan}[c+d x]^3}{4 d (a+i a \text{Tan}[c+d x])^2}$$

Result (type 3, 273 leaves):

$$-\frac{1}{16 a^2 d (-i+\text{Tan}[c+d x])^2} \text{Sec}[c+d x]^2 (\text{Cos}[d x]+i \text{Sin}[d x])^2 \Big(-32 d x-12 i \text{Cos}[2 d x]-8 i \text{Cos}[2 c-d x] \text{Sec}[c] \text{Sec}[c+d x]+8 i \text{Cos}[2 c+d x] \text{Sec}[c] \text{Sec}[c+d x]+ 64 d x \text{Sin}[c]^2+32 \text{ArcTan}[\text{Tan}[d x]] (\text{Cos}[2 c]+i \text{Sin}[2 c])+36 i d x \text{Sin}[2 c]+\text{Cos}[4 d x] \text{Sin}[2 c]-16 \text{Log}\big[\text{Cos}[c+d x]^2\big] \text{Sin}[2 c]- 12 \text{Sin}[2 d x]-i \text{Sin}[2 c] \text{Sin}[4 d x]+8 \text{Sec}[c] \text{Sec}[c+d x] \text{Sin}[2 c-d x]-8 \text{Sec}[c] \text{Sec}[c+d x] \text{Sin}[2 c+d x]- 32 i d x \text{Tan}[c]+\text{Cos}[2 c] \big(36 d x+i \text{Cos}[4 d x]+16 i \text{Log}\big[\text{Cos}[c+d x]^2\big]+\text{Sin}[4 d x]-32 i d x \text{Tan}[c]\big)\Big)$$

Problem 64: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 97 leaves, 5 steps):

$$-\frac{9 x}{4 a^2}-\frac{9 \text{Cot}[c+d x]}{4 a^2 d}-\frac{2 i \text{Log}[\text{Sin}[c+d x]]}{a^2 d}+\frac{\text{Cot}[c+d x]}{a^2 d (1+i \text{Tan}[c+d x])}+\frac{\text{Cot}[c+d x]}{4 d (a+i a \text{Tan}[c+d x])^2}$$

Result (type 3, 276 leaves):

$$-\frac{1}{16 a^2 d (-i+\text{Tan}[c+d x])^2} \text{Sec}[c+d x]^2 (\text{Cos}[d x]+i \text{Sin}[d x])^2 \Big(-32 d x+64 d x \text{Cos}[c]^2-12 i \text{Cos}[2 d x]+32 i d x \text{Cot}[c]+8 i \text{Cos}[2 c-d x] \text{Csc}[c] \text{Csc}[c+d x]-8 i \text{Cos}[2 c+d x] \text{Csc}[c] \text{Csc}[c+d x]- 32 \text{ArcTan}[\text{Tan}[d x]] (\text{Cos}[2 c]+i \text{Sin}[2 c])-36 i d x \text{Sin}[2 c]-\text{Cos}[4 d x] \text{Sin}[2 c]+16 \text{Log}\big[\text{Sin}[c+d x]^2\big] \text{Sin}[2 c]- 12 \text{Sin}[2 d x]+i \text{Sin}[2 c] \text{Sin}[4 d x]-i \text{Cos}[2 c] \big(\text{Cos}[4 d x]+32 d x \text{Cot}[c]-i \big(36 d x+16 i \text{Log}\big[\text{Sin}[c+d x]^2\big]+\text{Sin}[4 d x]\big)\big)- 8 \text{Csc}[c] \text{Csc}[c+d x] \text{Sin}[2 c-d x]+8 \text{Csc}[c] \text{Csc}[c+d x] \text{Sin}[2 c+d x]\Big)$$

Problem 65: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^3}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 122 leaves, 6 steps):

$$\frac{15 i x}{4 a^2}+\frac{15 i \text{Cot}[c+d x]}{4 a^2 d}-\frac{2 \text{Cot}[c+d x]^2}{a^2 d}-\frac{4 \text{Log}[\text{Sin}[c+d x]]}{a^2 d}+\frac{5 \text{Cot}[c+d x]^2}{4 a^2 d (1+i \text{Tan}[c+d x])}+\frac{\text{Cot}[c+d x]^2}{4 d (a+i a \text{Tan}[c+d x])^2}$$

Result (type 3, 319 leaves):

$$\frac{1}{16\,a^2\,d\,(-\mathrm{i}+\mathrm{Tan}[c+d\,x])^2}$$
$$\mathrm{Sec}[c+d\,x]^2\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^2\,\Big(-64\,\mathrm{i}\,d\,x+128\,\mathrm{i}\,d\,x\,\mathrm{Cos}[c]^2-60\,\mathrm{i}\,d\,x\,\mathrm{Cos}[2\,c]+16\,\mathrm{Cos}[2\,d\,x]+\mathrm{Cos}[2\,c]\,\mathrm{Cos}[4\,d\,x]-64\,d\,x\,\mathrm{Cot}[c]+64\,d\,x\,\mathrm{Cos}[2\,c]\,\mathrm{Cot}[c]-16\,\mathrm{Cos}[2\,c-d\,x]\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]+16\,\mathrm{Cos}[2\,c+d\,x]\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]+8\,\mathrm{Cos}[2\,c]\,\mathrm{Csc}[c+d\,x]^2+32\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+60\,d\,x\,\mathrm{Sin}[2\,c]-\mathrm{i}\,\mathrm{Cos}[4\,d\,x]\,\mathrm{Sin}[2\,c]+8\,\mathrm{i}\,\mathrm{Csc}[c+d\,x]^2\,\mathrm{Sin}[2\,c]+32\,\mathrm{i}\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]\,\mathrm{Sin}[2\,c]+64\,\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,(-\mathrm{i}\,\mathrm{Cos}[2\,c]+\mathrm{Sin}[2\,c])-16\,\mathrm{i}\,\mathrm{Sin}[2\,d\,x]-\mathrm{i}\,\mathrm{Cos}[2\,c]\,\mathrm{Sin}[4\,d\,x]-\mathrm{Sin}[2\,c]\,\mathrm{Sin}[4\,d\,x]-16\,\mathrm{i}\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\,\mathrm{Sin}[2\,c-d\,x]+16\,\mathrm{i}\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\,\mathrm{Sin}[2\,c+d\,x]\Big)$$

Problem 66: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Tan}[c+d\,x]^6}{(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 161 leaves, 6 steps):

$$\frac{55\,x}{8\,a^3}+\frac{7\,\mathrm{i}\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{a^3\,d}-\frac{55\,\mathrm{Tan}[c+d\,x]}{8\,a^3\,d}+\frac{7\,\mathrm{i}\,\mathrm{Tan}[c+d\,x]^2}{2\,a^3\,d}-\frac{\mathrm{Tan}[c+d\,x]^5}{6\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^3}+\frac{13\,\mathrm{i}\,\mathrm{Tan}[c+d\,x]^4}{24\,a\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^2}+\frac{55\,\mathrm{Tan}[c+d\,x]^3}{24\,d\,\big(a^3+\mathrm{i}\,a^3\,\mathrm{Tan}[c+d\,x]\big)}$$

Result (type 3, 898 leaves):

$$\frac{55\,x\,\text{Cos}[3c]\,\text{Sec}[c+d x]^3\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{8\,(a+i\,a\,\text{Tan}[c+d x])^3}+\frac{7\,i\,\text{Cos}[3c]\,\text{Log}[\text{Cos}[c+d x]]\,\text{Sec}[c+d x]^3\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\frac{\text{Cos}[4 d x]\,\text{Sec}[c+d x]^3\left(\frac{9}{32}\,i\,\text{Cos}[c]+\frac{9\,\text{Sin}[c]}{32}\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\frac{\text{Cos}[2 d x]\,\text{Sec}[c+d x]^3\left(-\frac{39}{16}\,i\,\text{Cos}[c]+\frac{39\,\text{Sin}[c]}{16}\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+\frac{\text{Sec}[c+d x]^5\left(\frac{1}{2}\,i\,\text{Cos}[3c]-\frac{1}{2}\,\text{Sin}[3c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\frac{\text{Cos}[6 d x]\,\text{Sec}[c+d x]^3\left(-\frac{1}{48}\,i\,\text{Cos}[3c]-\frac{1}{48}\,\text{Sin}[3c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+\frac{55\,i\,x\,\text{Sec}[c+d x]^3\,\text{Sin}[3c]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{8\,(a+i\,a\,\text{Tan}[c+d x])^3}-$$

$$\frac{7\,\text{Log}[\text{Cos}[c+d x]]\,\text{Sec}[c+d x]^3\,\text{Sin}[3c]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+\frac{\text{Sec}[c+d x]^3\left(-\frac{39\,\text{Cos}[c]}{16}-\frac{39}{16}\,i\,\text{Sin}[c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3\,\text{Sin}[2 d x]}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\frac{\text{Sec}[c+d x]^3\left(\frac{9\,\text{Cos}[c]}{32}-\frac{9}{32}\,i\,\text{Sin}[c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3\,\text{Sin}[4 d x]}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\frac{\text{Sec}[c+d x]^3\left(-\frac{1}{48}\,\text{Cos}[3c]+\frac{1}{48}\,i\,\text{Sin}[3c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^3\,\text{Sin}[6 d x]}{d\,(a+i\,a\,\text{Tan}[c+d x])^3}+$$

$$\left(3\,i\,\text{Sec}[c+d x]^4\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3\,(-\text{Cos}[3c-d x]+\text{Cos}[3c+d x]-i\,\text{Sin}[3c-d x]+i\,\text{Sin}[3c+d x])\right)\Big/$$

$$\left(2\,d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(a+i\,a\,\text{Tan}[c+d x])^3\right)+\frac{1}{(a+i\,a\,\text{Tan}[c+d x])^3}$$

$$x\,\text{Sec}[c+d x]^3\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3\left(-\frac{7\,\text{Cos}[c]}{2}+\frac{7\,\text{Cos}[c]^3}{2}-7\,i\,\text{Sin}[c]+14\,i\,\text{Cos}[c]^2\,\text{Sin}[c]-\right.$$

$$\left.21\,\text{Cos}[c]\,\text{Sin}[c]^2-14\,i\,\text{Sin}[c]^3+\frac{7}{2}\,\text{Sin}[c]\,\text{Tan}[c]+\frac{7}{2}\,\text{Sin}[c]^3\,\text{Tan}[c]-i\,(7\,\text{Cos}[3c]+7\,i\,\text{Sin}[3c])\,\text{Tan}[c]\right)$$

- **Problem 74: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d x]^2}{(a+i\,a\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 133 leaves, 6 steps):

$$-\frac{25\,x}{8\,a^3}-\frac{25\,\text{Cot}[c+d x]}{8\,a^3\,d}-\frac{3\,i\,\text{Log}[\text{Sin}[c+d x]]}{a^3\,d}+\frac{\text{Cot}[c+d x]}{6\,d\,(a+i\,a\,\text{Tan}[c+d x])^3}+\frac{11\,\text{Cot}[c+d x]}{24\,a\,d\,(a+i\,a\,\text{Tan}[c+d x])^2}+\frac{3\,\text{Cot}[c+d x]}{2\,d\left(a^3+i\,a^3\,\text{Tan}[c+d x]\right)}$$

Result (type 3, 899 leaves):

$$-\frac{25\,x\,\text{Cos}[3\,c]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{8\,(a+i\,a\,\text{Tan}[c+d\,x])^3}-\frac{3\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Cos}[3\,c]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}-$$

$$\frac{3\,i\,\text{Cos}[3\,c]\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{\text{Cos}[4\,d\,x]\,\text{Sec}[c+d\,x]^3\left(-\frac{7}{32}\,i\,\text{Cos}[c]-\frac{7\,\text{Sin}[c]}{32}\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\frac{\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]^3\left(-\frac{23}{16}\,i\,\text{Cos}[c]+\frac{23\,\text{Sin}[c]}{16}\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{1}{(a+i\,a\,\text{Tan}[c+d\,x])^3}$$

$$x\,\text{Sec}[c+d\,x]^3\,(-6\,\text{Cos}[c]+3\,i\,\text{Cos}[c]\,\text{Cot}[c]-3\,i\,\text{Sin}[c]-i\,\text{Cot}[c]\,(3\,\text{Cos}[3\,c]+3\,i\,\text{Sin}[3\,c]))\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3+$$

$$\frac{\text{Cos}[6\,d\,x]\,\text{Sec}[c+d\,x]^3\left(-\frac{1}{48}\,i\,\text{Cos}[3\,c]-\frac{1}{48}\,\text{Sin}[3\,c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}-$$

$$\frac{25\,i\,x\,\text{Sec}[c+d\,x]^3\,\text{Sin}[3\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{8\,(a+i\,a\,\text{Tan}[c+d\,x])^3}-\frac{3\,i\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sec}[c+d\,x]^3\,\text{Sin}[3\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\frac{3\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]\,\text{Sec}[c+d\,x]^3\,\text{Sin}[3\,c]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{\text{Sec}[c+d\,x]^3\left(-\frac{23\,\text{Cos}[c]}{16}-\frac{23}{16}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[2\,d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\frac{\text{Sec}[c+d\,x]^3\left(-\frac{7\,\text{Cos}[c]}{32}+\frac{7}{32}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[4\,d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\frac{\text{Sec}[c+d\,x]^3\left(-\frac{1}{48}\,\text{Cos}[3\,c]+\frac{1}{48}\,i\,\text{Sin}[3\,c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[6\,d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+\frac{1}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}$$

$$\text{Csc}\left[\frac{c}{2}\right]\text{Csc}[c+d\,x]\,\text{Sec}\left[\frac{c}{2}\right]\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\left(\frac{1}{2}\,i\,\text{Cos}[3\,c-d\,x]-\frac{1}{2}\,i\,\text{Cos}[3\,c+d\,x]-\frac{1}{2}\,\text{Sin}[3\,c-d\,x]+\frac{1}{2}\,\text{Sin}[3\,c+d\,x]\right)$$

- **Problem 75: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^6}{(a+i\,a\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 171 leaves, 6 steps):

$$-\frac{65\,x}{16\,a^4}-\frac{4\,i\,\text{Log}[\text{Cos}[c+d\,x]]}{a^4\,d}+\frac{65\,\text{Tan}[c+d\,x]}{16\,a^4\,d}-\frac{2\,i\,\text{Tan}[c+d\,x]^2}{a^4\,d\,(1+i\,\text{Tan}[c+d\,x])}+$$

$$\frac{31\,\text{Tan}[c+d\,x]^3}{48\,a^4\,d\,(1+i\,\text{Tan}[c+d\,x])^2}-\frac{\text{Tan}[c+d\,x]^5}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^4}+\frac{7\,i\,\text{Tan}[c+d\,x]^4}{24\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^3}$$

Result (type 3, 429 leaves):

$$-\frac{1}{1536 a^4 d (-i + \text{Tan}[c + d x])^4} \text{Sec}[c] \text{Sec}[c + d x]^5 \\ (-536 i \text{Cos}[d x] - 536 i \text{Cos}[2 c + d x] - 893 i \text{Cos}[2 c + 3 d x] + 1560 d x \text{Cos}[2 c + 3 d x] - 1661 i \text{Cos}[4 c + 3 d x] + 1560 d x \text{Cos}[4 c + 3 d x] + \\ 771 i \text{Cos}[4 c + 5 d x] + 1560 d x \text{Cos}[4 c + 5 d x] + 3 i \text{Cos}[6 c + 5 d x] + 1560 d x \text{Cos}[6 c + 5 d x] + 1536 i \text{Cos}[2 c + 3 d x] \text{Log}[\text{Cos}[c + d x]] + \\ 1536 i \text{Cos}[4 c + 3 d x] \text{Log}[\text{Cos}[c + d x]] + 1536 i \text{Cos}[4 c + 5 d x] \text{Log}[\text{Cos}[c + d x]] + 1536 i \text{Cos}[6 c + 5 d x] \text{Log}[\text{Cos}[c + d x]] + \\ 832 \text{Sin}[d x] + 832 \text{Sin}[2 c + d x] + 835 \text{Sin}[2 c + 3 d x] + 1560 i d x \text{Sin}[2 c + 3 d x] - 1536 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[2 c + 3 d x] + \\ 1603 \text{Sin}[4 c + 3 d x] + 1560 i d x \text{Sin}[4 c + 3 d x] - 1536 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[4 c + 3 d x] - 765 \text{Sin}[4 c + 5 d x] + 1560 i d x \text{Sin}[4 c + 5 d x] - \\ 1536 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[4 c + 5 d x] + 3 \text{Sin}[6 c + 5 d x] + 1560 i d x \text{Sin}[6 c + 5 d x] - 1536 \text{Log}[\text{Cos}[c + d x]] \text{Sin}[6 c + 5 d x])$$

Problem 83: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c + d x]^2}{(a + i a \text{Tan}[c + d x])^4} \, dx$$

Optimal (type 3, 159 leaves, 7 steps):

$$-\frac{65 x}{16 a^4} - \frac{65 \text{Cot}[c + d x]}{16 a^4 d} - \frac{4 i \text{Log}[\text{Sin}[c + d x]]}{a^4 d} + \frac{31 \text{Cot}[c + d x]}{48 a^4 d (1 + i \text{Tan}[c + d x])^2} + \\ \frac{2 \text{Cot}[c + d x]}{a^4 d (1 + i \text{Tan}[c + d x])} + \frac{\text{Cot}[c + d x]}{8 d (a + i a \text{Tan}[c + d x])^4} + \frac{7 \text{Cot}[c + d x]}{24 a d (a + i a \text{Tan}[c + d x])^3}$$

Result (type 3, 444 leaves):

$$\frac{1}{384 a^4 d (-i + \text{Tan}[c + d x])^4} i \text{Csc}[c] \text{Sec}[c + d x]^4 (\text{Cos}[d x] + i \text{Sin}[d x])^4 \\ \Big(1536 d x \text{Cos}[c]^3 + 4608 i d x \text{Cos}[c]^2 \text{Sin}[c] + 1536 i \text{ArcTan}[\text{Tan}[d x]] \text{Sin}[c] (\text{Cos}[4 c] + i \text{Sin}[4 c]) - \\ 64 \text{Cos}[c] \Big(24 d x \text{Cos}[4 c] + 24 i d x \text{Sin}[4 c] + \text{Sin}[c]^2 (72 d x - i \text{Cos}[6 d x] - \text{Sin}[6 d x])\Big) + \\ i \Big(-192 i \text{Cos}[4 c - d x] \text{Csc}[c + d x] + 192 i \text{Cos}[4 c + d x] \text{Csc}[c + d x] + 1560 d x \text{Cos}[4 c] \text{Sin}[c] + \\ 864 i \text{Cos}[2 c] \text{Cos}[2 d x] \text{Sin}[c] + 180 i \text{Cos}[4 d x] \text{Sin}[c] + 32 i \text{Cos}[2 c] \text{Cos}[6 d x] \text{Sin}[c] + 3 i \text{Cos}[4 c] \text{Cos}[8 d x] \text{Sin}[c] + \\ 768 i \text{Cos}[4 c] \text{Log}\big[\text{Sin}[c + d x]^2\big] \text{Sin}[c] - 1536 d x \text{Sin}[c]^3 - 864 \text{Cos}[2 d x] \text{Sin}[c] \text{Sin}[2 c] + 1560 i d x \text{Sin}[c] \text{Sin}[4 c] + \\ 3 \text{Cos}[8 d x] \text{Sin}[c] \text{Sin}[4 c] - 768 \text{Log}\big[\text{Sin}[c + d x]^2\big] \text{Sin}[c] \text{Sin}[4 c] + 864 \text{Cos}[2 c] \text{Sin}[c] \text{Sin}[2 d x] + \\ 864 i \text{Sin}[c] \text{Sin}[2 c] \text{Sin}[2 d x] + 180 \text{Sin}[c] \text{Sin}[4 d x] + 32 \text{Cos}[2 c] \text{Sin}[c] \text{Sin}[6 d x] + 3 \text{Cos}[4 c] \text{Sin}[c] \text{Sin}[8 d x] - \\ 3 i \text{Sin}[c] \text{Sin}[4 c] \text{Sin}[8 d x] + 192 \text{Csc}[c + d x] \text{Sin}[4 c - d x] - 192 \text{Csc}[c + d x] \text{Sin}[4 c + d x]\Big)\Big)$$

Problem 89: Unable to integrate problem.

$$\int \text{Cot}[c + d x] \sqrt{a + i a \text{Tan}[c + d x]} \, dx$$

Optimal (type 3, 78 leaves, 6 steps):

$$-\frac{2 \sqrt{a} \text{ArcTanh}\left[\frac{\sqrt{a + i a \text{Tan}[c + d x]}}{\sqrt{a}}\right]}{d} + \frac{\sqrt{2} \sqrt{a} \text{ArcTanh}\left[\frac{\sqrt{a + i a \text{Tan}[c + d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}$$

Result (type 8, 26 leaves):

$$\int \text{Cot}[c + d x] \sqrt{a + i a \text{Tan}[c + d x]} \, dx$$

Problem 90: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^2 \sqrt{a+i a \operatorname{Tan}[c+d x]}\, dx$$

Optimal (type 3, 111 leaves, 8 steps):

$$-\frac{i \sqrt{a} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{i \sqrt{2} \sqrt{a} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}-\frac{\operatorname{Cot}[c+d x] \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d}$$

Result (type 3, 290 leaves):

$$\left(i \sqrt{e^{i d x}} \left(4 \operatorname{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2} \left(\operatorname{Log}\left[1-e^{i (c+d x)}\right]-\operatorname{Log}\left[1+e^{i (c+d x)}\right]+\operatorname{Log}\left[1-e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]-\operatorname{Log}\left[1+e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]\right)\right) \sqrt{a+i a \operatorname{Tan}[c+d x]}\right) \Big/ \left(2 \sqrt{2}\, d \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{1+e^{2 i (c+d x)}} \sqrt{\operatorname{Sec}[c+d x]} \sqrt{\operatorname{Cos}[d x]+i \operatorname{Sin}[d x]}\right)+\frac{(-\operatorname{Cot}[c]+\operatorname{Csc}[c] \operatorname{Csc}[c+d x] \operatorname{Sin}[d x]) \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d}$$

Problem 96: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x] (a+i a \operatorname{Tan}[c+d x])^{3/2}\, dx$$

Optimal (type 3, 79 leaves, 6 steps):

$$-\frac{2 a^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{2 \sqrt{2}\, a^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}$$

Result (type 3, 201 leaves):

$$\frac{1}{\sqrt{2}\, d} e^{-3 i (c+d x)} \left(\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{3/2} \left(1+e^{2 i (c+d x)}\right)^{3/2} \left(4 \operatorname{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2} \left(\operatorname{Log}\left[1-e^{i (c+d x)}\right]-\operatorname{Log}\left[1+e^{i (c+d x)}\right]+\operatorname{Log}\left[1-e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]-\operatorname{Log}\left[1+e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]\right)\right)$$

Problem 103: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x] (a+i a \operatorname{Tan}[c+d x])^{5/2}\, dx$$

Optimal (type 3, 104 leaves, 7 steps):

$$-\frac{2 a^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{4 \sqrt{2}\, a^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}-\frac{2 a^2 \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d}$$

Result (type 3, 276 leaves) :

$$-\frac{1}{\sqrt{2}\, d} a^2 e^{-i (c+d x)} \left(2 \sqrt{2}\, e^{i (c+d x)} - 4 \sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\, \text{ArcSinh}\left[e^{i (c+d x)}\right] - \sqrt{1+e^{2 i (c+d x)}}\, \text{Log}\left[1-e^{i (c+d x)}\right] + \sqrt{1+e^{2 i (c+d x)}}\, \text{Log}\left[1+e^{i (c+d x)}\right] - \sqrt{1+e^{2 i (c+d x)}}\, \text{Log}\left[1-e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right] + \sqrt{1+e^{2 i (c+d x)}}\, \text{Log}\left[1+e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]\right) \sqrt{a+i a \text{Tan}[c+d x]}$$

- **Problem 104: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^{5/2}\, dx$$

Optimal (type 3, 114 leaves, 7 steps) :

$$-\frac{5 i a^{5/2} \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d} + \frac{4 i \sqrt{2}\, a^{5/2} \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d} - \frac{a^2 \text{Cot}[c+d x] \sqrt{a+i a \text{Tan}[c+d x]}}{d}$$

Result (type 3, 251 leaves) :

$$\frac{1}{2 \sqrt{2}\, d} i a^2 e^{-i (c+2 d x)} \sqrt{\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{1+e^{2 i (c+d x)}} \left(16 \text{ArcSinh}\left[e^{i (c+d x)}\right] + 2 i \sqrt{1+e^{2 i (c+d x)}}\, \text{Csc}[c+d x] + 5 \sqrt{2} \left(\text{Log}\left[1-e^{i (c+d x)}\right] - \text{Log}\left[1+e^{i (c+d x)}\right] + \text{Log}\left[1-e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right] - \text{Log}\left[1+e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]\right)\right) (\text{Cos}[d x] + i \text{Sin}[d x])$$

- **Problem 114: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]}{\sqrt{a+i a \text{Tan}[c+d x]}}\, dx$$

Optimal (type 3, 99 leaves, 7 steps) :

$$-\frac{2 \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\, d} + \frac{\text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{\sqrt{2} \sqrt{a}\, d} + \frac{1}{d \sqrt{a+i a \text{Tan}[c+d x]}}$$

Result (type 3, 256 leaves) :

$$\left(\sqrt{1+e^{2 i (c+d x)}} + e^{i (c+d x)} \text{ArcSinh}\left[e^{i (c+d x)}\right] + \sqrt{2}\, e^{i (c+d x)} \text{Log}\left[1-e^{i (c+d x)}\right] - \sqrt{2}\, e^{i (c+d x)} \text{Log}\left[1+e^{i (c+d x)}\right] + \sqrt{2}\, e^{i (c+d x)} \text{Log}\left[1-e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right] - \sqrt{2}\, e^{i (c+d x)} \text{Log}\left[1+e^{i (c+d x)}+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right]\right) \Big/ \left(d \sqrt{1+e^{2 i (c+d x)}} \sqrt{a+i a \text{Tan}[c+d x]}\right)$$

- **Problem 132: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]}{(a+i a \text{Tan}[c+d x])^{5/2}}\, dx$$

Optimal (type 3, 159 leaves, 9 steps) :

$$-\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{4\,\sqrt{2}\,a^{5/2}\,d}+\frac{1}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}+\frac{1}{2\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}+\frac{7}{4\,a^2\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 344 leaves) :

$$\frac{1}{80\,a^2\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,e^{-6\,i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^{3/2}\,\left(\sqrt{1+e^{2\,i\,(c+d\,x)}}+7\,e^{2\,i\,(c+d\,x)}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}+41\,e^{4\,i\,(c+d\,x)}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}+5\,e^{5\,i\,(c+d\,x)}\,\text{ArcSinh}\left[e^{i\,(c+d\,x)}\right]+\right.$$
$$20\,\sqrt{2}\,e^{5\,i\,(c+d\,x)}\,\text{Log}\left[1-e^{i\,(c+d\,x)}\right]-20\,\sqrt{2}\,e^{5\,i\,(c+d\,x)}\,\text{Log}\left[1+e^{i\,(c+d\,x)}\right]+$$
$$\left.20\,\sqrt{2}\,e^{5\,i\,(c+d\,x)}\,\text{Log}\left[1-e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]-20\,\sqrt{2}\,e^{5\,i\,(c+d\,x)}\,\text{Log}\left[1+e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]\right)\,\text{Sec}[c+d\,x]^2$$

Problem 188: Result more than twice size of optimal antiderivative.

$$\int\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 104 leaves, 7 steps) :

$$-\frac{2\,(-1)^{3/4}\,\sqrt{a}\,\text{ArcTan}\left[\frac{(-1)^{3/4}\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{(1+i)\,\sqrt{a}\,\text{ArcTanh}\left[\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}$$

Result (type 3, 232 leaves) :

$$\frac{1}{4\,d\,\sqrt{-\frac{i\,\left(-1+e^{2\,i\,(c+d\,x)}\right)}{1+e^{2\,i\,(c+d\,x)}}}}\,e^{-i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\left(-4\,\text{Log}\left[e^{i\,(c+d\,x)}+\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]+\right.$$
$$\left.\sqrt{2}\,\left(\text{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}-2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]-\text{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]\right)\right)\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}$$

Problem 189: Unable to integrate problem.

$$\int\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 49 leaves, 2 steps) :

$$\frac{(1-i)\,\sqrt{a}\,\text{ArcTanh}\left[\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}$$

Result (type 8, 30 leaves) :

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\sqrt{\operatorname{Tan}[c + d x]}} \, dx$$

Problem 190: Unable to integrate problem.

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\operatorname{Tan}[c + d x]^{3/2}} \, dx$$

Optimal (type 3, 82 leaves, 3 steps):

$$\frac{(1 + i) \sqrt{a} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d} - \frac{2 \sqrt{a + i a \operatorname{Tan}[c + d x]}}{d \sqrt{\operatorname{Tan}[c + d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\operatorname{Tan}[c + d x]^{3/2}} \, dx$$

Problem 191: Unable to integrate problem.

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\operatorname{Tan}[c + d x]^{5/2}} \, dx$$

Optimal (type 3, 120 leaves, 5 steps):

$$-\frac{(1 - i) \sqrt{a} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d} - \frac{2 \sqrt{a + i a \operatorname{Tan}[c + d x]}}{3 d \operatorname{Tan}[c + d x]^{3/2}} - \frac{2 i \sqrt{a + i a \operatorname{Tan}[c + d x]}}{3 d \sqrt{\operatorname{Tan}[c + d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\operatorname{Tan}[c + d x]^{5/2}} \, dx$$

Problem 192: Unable to integrate problem.

$$\int \frac{\sqrt{a + i a \operatorname{Tan}[c + d x]}}{\operatorname{Tan}[c + d x]^{7/2}} \, dx$$

Optimal (type 3, 154 leaves, 6 steps):

$$-\frac{(1 + i) \sqrt{a} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d} - \frac{2 \sqrt{a + i a \operatorname{Tan}[c + d x]}}{5 d \operatorname{Tan}[c + d x]^{5/2}} - \frac{2 i \sqrt{a + i a \operatorname{Tan}[c + d x]}}{15 d \operatorname{Tan}[c + d x]^{3/2}} + \frac{26 \sqrt{a + i a \operatorname{Tan}[c + d x]}}{15 d \sqrt{\operatorname{Tan}[c + d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a+i a \operatorname{Tan}[c+d x]}}{\operatorname{Tan}[c+d x]^{7/2}} \, dx$$

- **Problem 196: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^{3/2}}{\sqrt{\operatorname{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 104 leaves, 7 steps):

$$\frac{2 (-1)^{1/4} a^{3/2} \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{(2-2 i) a^{3/2} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}$$

Result (type 3, 255 leaves):

$$-\left(i a e^{-i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}} \left(8 \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\sqrt{2} \left(-\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)\right) \Big/ \left(2 \sqrt{2} d \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\right)$$

- **Problem 197: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^{3/2}}{\operatorname{Tan}[c+d x]^{3/2}} \, dx$$

Optimal (type 3, 83 leaves, 3 steps):

$$\frac{(2+2 i) a^{3/2} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{2 a \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d \sqrt{\operatorname{Tan}[c+d x]}}$$

Result (type 3, 168 leaves):

$$-\left(2 i \sqrt{2} a^2 e^{i (c+d x)} \left(e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}-\left(-1+e^{2 i (c+d x)}\right) \operatorname{Log}\left[e^{-i c} \left(e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right)\right]\right) \sqrt{\operatorname{Tan}[c+d x]}\right) \Big/ \left(d \left(-1+e^{2 i (c+d x)}\right)^{3/2} \sqrt{\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}}\right)$$

- **Problem 202: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x]^{3/2} (a+i a \operatorname{Tan}[c+d x])^{5/2} \, dx$$

Optimal (type 3, 219 leaves, 10 steps):

$$-\frac{45\,(-1)^{1/4}\,a^{5/2}\,\text{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{8\,d}-\frac{(4-4\,i)\,a^{5/2}\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}+$$
$$\frac{19\,a^2\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{8\,d}+\frac{13\,i\,a^2\,\text{Tan}[c+d\,x]^{3/2}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{12\,d}-\frac{a^2\,\text{Tan}[c+d\,x]^{5/2}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 3, 465 leaves):

$$\frac{1}{32\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\sqrt{\text{Tan}[c+d\,x]}}$$
$$\text{Cos}[c+d\,x]^2\left(45\sqrt{2}\,\text{Log}\left[\frac{2\,e^{\frac{7\,i\,c}{2}}\left(i\sqrt{2}+\sqrt{2}\,e^{i\,(c+d\,x)}-2\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{45\left(-i+e^{i\,(c+d\,x)}\right)}\right]-45\sqrt{2}\,\text{Log}\left[\frac{2\,e^{\frac{7\,i\,c}{2}}\left(-i\sqrt{2}+\sqrt{2}\,e^{i\,(c+d\,x)}+2\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{45\left(i+e^{i\,(c+d\,x)}\right)}\right]+\right.$$
$$\left.128\,\text{Log}\left[(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]+\sqrt{-1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}\right)\right]\right)$$
$$\sqrt{-1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}\,(i\,\text{Cos}[3\,c+d\,x]+\text{Sin}[3\,c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}+\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}$$
$$\text{Cos}[c+d\,x]^2\left(\frac{91}{24}\text{Cos}[2\,c]+\text{Sec}[c+d\,x]^2\left(-\frac{1}{3}\text{Cos}[2\,c]+\frac{1}{3}\,i\,\text{Sin}[2\,c]\right)-\frac{91}{24}\,i\,\text{Sin}[2\,c]+\text{Sec}[c+d\,x]\left(-\frac{13}{12}\text{Cos}[3\,c+d\,x]+\frac{13}{12}\,i\,\text{Sin}[3\,c+d\,x]\right)\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}$$

- **Problem 204: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 139 leaves, 8 steps):

$$\frac{5\,(-1)^{1/4}\,a^{5/2}\,\text{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{(4-4\,i)\,a^{5/2}\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{a^2\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 3, 360 leaves):

$$\frac{1}{4\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\sqrt{\mathrm{Tan}[c+d\,x]}}\mathrm{Cos}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}$$

$$\left(-i\left(5\sqrt{2}\,\mathrm{Log}\left[-\frac{2\,e^{\frac{7\,i\,c}{2}}\left(i\sqrt{2}+\sqrt{2}\,e^{i\,(c+d\,x)}-2\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{5\left(-i+e^{i\,(c+d\,x)}\right)}\right]-5\sqrt{2}\,\mathrm{Log}\left[-\frac{2\,e^{\frac{7\,i\,c}{2}}\left(-i\sqrt{2}+\sqrt{2}\,e^{i\,(c+d\,x)}+2\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{5\left(i+e^{i\,(c+d\,x)}\right)}\right]+\right.\right.$$

$$\left.16\,\mathrm{Log}\left[(\mathrm{Cos}[c]-i\,\mathrm{Sin}[c])\left(\mathrm{Cos}[c+d\,x]+i\,\mathrm{Sin}[c+d\,x]+\sqrt{-1+\mathrm{Cos}[2\,(c+d\,x)]+i\,\mathrm{Sin}[2\,(c+d\,x)]}\right)\right]\right)$$

$$\left.\sqrt{-1+\mathrm{Cos}[2\,(c+d\,x)]+i\,\mathrm{Sin}[2\,(c+d\,x)]}\,(\mathrm{Cos}[3\,c+d\,x]-i\,\mathrm{Sin}[3\,c+d\,x])-4\,\mathrm{Cos}[2\,c]\,\mathrm{Tan}[c+d\,x]+4\,i\,\mathrm{Sin}[2\,c]\,\mathrm{Tan}[c+d\,x]\right)$$

Problem 212: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Tan}[c+d\,x]^{3/2}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 140 leaves, 8 steps):

$$-\frac{2\,(-1)^{1/4}\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{a}\,d}-\frac{\left(\frac{1}{2}-\frac{i}{2}\right)\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{a}\,d}-\frac{\sqrt{\mathrm{Tan}[c+d\,x]}}{d\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 316 leaves):

$$\frac{1}{2\sqrt{2}\,a\,d\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$i\,e^{-2\,i\,(c+d\,x)}\sqrt{\frac{a\,e^{2\,i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\left(-2+2\,e^{2\,i\,(c+d\,x)}+2\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\mathrm{Log}\left[e^{i\,(c+d\,x)}+\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]-\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right.$$

$$\left.\mathrm{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}-2\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]+\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\mathrm{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}+2\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]\right)$$

Problem 248: Unable to integrate problem.

$$\int\mathrm{Tan}[c+d\,x]^{4/3}\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{7}{3},\frac{1}{2},1,\frac{10}{3},-i\,\mathrm{Tan}[c+d\,x],i\,\mathrm{Tan}[c+d\,x]\right]\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{7/3}}{7\,d\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \mathrm{Tan}[c+d\,x]^{4/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\;dx$$

- **Problem 249: Unable to integrate problem.**

$$\int \mathrm{Tan}[c+d\,x]^{2/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\;dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{5}{3},\,\frac{1}{2},\,1,\,\frac{8}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{5/3}}{5\,d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \mathrm{Tan}[c+d\,x]^{2/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\;dx$$

- **Problem 250: Unable to integrate problem.**

$$\int \mathrm{Tan}[c+d\,x]^{1/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\;dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{4}{3},\,\frac{1}{2},\,1,\,\frac{7}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{4/3}}{4\,d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \mathrm{Tan}[c+d\,x]^{1/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}\;dx$$

- **Problem 251: Unable to integrate problem.**

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{1/3}}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{2}{3},\,\frac{1}{2},\,1,\,\frac{5}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{2/3}}{2\,d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{1/3}}\,dx$$

Problem 252: Unable to integrate problem.

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{2/3}}\,dx$$

Optimal (type 6, 80 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{1}{3},\,\frac{1}{2},\,1,\,\frac{4}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{1/3}}{d\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{2/3}}\,dx$$

Problem 253: Unable to integrate problem.

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{4/3}}\,dx$$

Optimal (type 6, 80 leaves, 4 steps):

$$-\frac{3\,a\,\mathrm{AppellF1}\left[-\frac{1}{3},\,\frac{1}{2},\,1,\,\frac{2}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}}{d\,\mathrm{Tan}[c+d\,x]^{1/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{4/3}}\,dx$$

Problem 254: Unable to integrate problem.

$$\int \mathrm{Tan}[c+d\,x]^{4/3}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\mathrm{AppellF1}\left[\frac{7}{3},\,-\frac{1}{2},\,1,\,\frac{10}{3},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{7/3}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{7\,d\,\sqrt{1+i\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \mathrm{Tan}[c+d\,x]^{4/3}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Problem 255: Unable to integrate problem.

$$\int \mathrm{Tan}[c+d\,x]^{2/3}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\text{AppellF1}\left[\frac{5}{3},\,-\frac{1}{2},\,1,\,\frac{8}{3},\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\,\text{Tan}[c+d\,x]^{5/3}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{5\,d\,\sqrt{1+i\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \text{Tan}[c+d\,x]^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Problem 256: Unable to integrate problem.

$$\int \text{Tan}[c+d\,x]^{1/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\text{AppellF1}\left[\frac{4}{3},\,-\frac{1}{2},\,1,\,\frac{7}{3},\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\,\text{Tan}[c+d\,x]^{4/3}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{4\,d\,\sqrt{1+i\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \text{Tan}[c+d\,x]^{1/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Problem 257: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{1/3}}\,dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3\,a\,\text{AppellF1}\left[\frac{2}{3},\,-\frac{1}{2},\,1,\,\frac{5}{3},\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\,\text{Tan}[c+d\,x]^{2/3}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{2\,d\,\sqrt{1+i\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{1/3}}\,dx$$

Problem 258: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{2/3}}\,dx$$

Optimal (type 6, 80 leaves, 4 steps):

$$\frac{3\,a\,\text{AppellF1}\left[\frac{1}{3},\,-\frac{1}{2},\,1,\,\frac{4}{3},\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\,\text{Tan}[c+d\,x]^{1/3}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\,\sqrt{1+i\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{2/3}}\,dx$$

Problem 259: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{4/3}}\,dx$$

Optimal (type 6, 80 leaves, 4 steps):

$$-\frac{3\,a\,\text{AppellF1}\left[-\frac{1}{3},-\frac{1}{2},1,\frac{2}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\,\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{1/3}}$$

Result (type 8, 30 leaves):

$$\int \frac{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{4/3}}\,dx$$

Problem 260: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d\,x]^{4/3}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{7}{3},\frac{3}{2},1,\frac{10}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{7/3}}{7\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\text{Tan}[c+d\,x]^{4/3}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Problem 261: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d\,x]^{2/3}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{5}{3},\frac{3}{2},1,\frac{8}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{5/3}}{5\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\text{Tan}[c+d\,x]^{2/3}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

Problem 262: Unable to integrate problem.

$$\int \frac{\tan[c+d x]^{1/3}}{\sqrt{a+i a \tan[c+d x]}}\,dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{4}{3},\frac{3}{2},1,\frac{7}{3},-i \tan[c+d x],i \tan[c+d x]\right]\sqrt{1+i \tan[c+d x]}\,\tan[c+d x]^{4/3}}{4\,d\,\sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\tan[c+d x]^{1/3}}{\sqrt{a+i a \tan[c+d x]}}\,dx$$

Problem 263: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{1/3}\sqrt{a+i a \tan[c+d x]}}\,dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{2}{3},\frac{3}{2},1,\frac{5}{3},-i \tan[c+d x],i \tan[c+d x]\right]\sqrt{1+i \tan[c+d x]}\,\tan[c+d x]^{2/3}}{2\,d\,\sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{1}{\tan[c+d x]^{1/3}\sqrt{a+i a \tan[c+d x]}}\,dx$$

Problem 264: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{2/3}\sqrt{a+i a \tan[c+d x]}}\,dx$$

Optimal (type 6, 79 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{1}{3},\frac{3}{2},1,\frac{4}{3},-i \tan[c+d x],i \tan[c+d x]\right]\sqrt{1+i \tan[c+d x]}\,\tan[c+d x]^{1/3}}{d\,\sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{1}{\tan[c+d x]^{2/3}\sqrt{a+i a \tan[c+d x]}}\,dx$$

Problem 265: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{4/3}\sqrt{a+i a \tan[c+d x]}}\,dx$$

Optimal (type 6, 79 leaves, 4 steps):

$$-\frac{3\,\text{AppellF1}\left[-\frac{1}{3},\frac{3}{2},1,\frac{2}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}}{d\,\text{Tan}[c+d\,x]^{1/3}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int\frac{1}{\text{Tan}[c+d\,x]^{4/3}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\,dx$$

- **Problem 266: Unable to integrate problem.**

$$\int\frac{\text{Tan}[c+d\,x]^{4/3}}{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 6, 84 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{7}{3},\frac{5}{2},1,\frac{10}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{7/3}}{7\,a\,d\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int\frac{\text{Tan}[c+d\,x]^{4/3}}{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

- **Problem 267: Unable to integrate problem.**

$$\int\frac{\text{Tan}[c+d\,x]^{2/3}}{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 6, 84 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{5}{3},\frac{5}{2},1,\frac{8}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{5/3}}{5\,a\,d\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int\frac{\text{Tan}[c+d\,x]^{2/3}}{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

- **Problem 268: Unable to integrate problem.**

$$\int\frac{\text{Tan}[c+d\,x]^{1/3}}{(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 6, 84 leaves, 4 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{4}{3},\frac{5}{2},1,\frac{7}{3},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\text{Tan}[c+d\,x]^{4/3}}{4\,a\,d\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{\tan[c+d x]^{1/3}}{(a+i a \tan[c+d x])^{3/2}} \, dx$$

Problem 269: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{1/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

Optimal (type 6, 84 leaves, 4 steps):

$$\frac{3 \, \text{AppellF1}\left[\frac{2}{3}, \frac{5}{2}, 1, \frac{5}{3}, -i \tan[c+d x], i \tan[c+d x]\right] \sqrt{1+i \tan[c+d x]} \, \tan[c+d x]^{2/3}}{2 a d \sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{1}{\tan[c+d x]^{1/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

Problem 270: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{2/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$\frac{3 \, \text{AppellF1}\left[\frac{1}{3}, \frac{5}{2}, 1, \frac{4}{3}, -i \tan[c+d x], i \tan[c+d x]\right] \sqrt{1+i \tan[c+d x]} \, \tan[c+d x]^{1/3}}{a d \sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{1}{\tan[c+d x]^{2/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

Problem 271: Unable to integrate problem.

$$\int \frac{1}{\tan[c+d x]^{4/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

Optimal (type 6, 82 leaves, 4 steps):

$$-\frac{3 \, \text{AppellF1}\left[-\frac{1}{3}, \frac{5}{2}, 1, \frac{2}{3}, -i \tan[c+d x], i \tan[c+d x]\right] \sqrt{1+i \tan[c+d x]}}{a d \tan[c+d x]^{1/3} \sqrt{a+i a \tan[c+d x]}}$$

Result (type 8, 30 leaves):

$$\int \frac{1}{\tan[c+d x]^{4/3} (a+i a \tan[c+d x])^{3/2}} \, dx$$

- **Problem 272: Attempted integration timed out after 120 seconds.**

$$\int \operatorname{Tan}[c+d x]^3 (a+i a \operatorname{Tan}[c+d x])^{1/3} dx$$

Optimal (type 3, 234 leaves, 8 steps):

$$-\frac{i a^{1/3} x}{2\times 2^{2/3}}+\frac{\sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d}-\frac{a^{1/3} \operatorname{Log}[\operatorname{Cos}[c+d x]]}{2\times 2^{2/3} d}-\frac{3 a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{2\times 2^{2/3} d}-\frac{18 (a+i a \operatorname{Tan}[c+d x])^{1/3}}{7 d}+\frac{3 \operatorname{Tan}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^{1/3}}{7 d}-\frac{3 (a+i a \operatorname{Tan}[c+d x])^{4/3}}{28 a d}$$

Result (type 1, 1 leaves):

???

- **Problem 273: Attempted integration timed out after 120 seconds.**

$$\int \operatorname{Tan}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^{1/3} dx$$

Optimal (type 3, 185 leaves, 6 steps):

$$\frac{a^{1/3} x}{2\times 2^{2/3}}+\frac{i \sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d}-\frac{i a^{1/3} \operatorname{Log}[\operatorname{Cos}[c+d x]]}{2\times 2^{2/3} d}-\frac{3 i a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{2\times 2^{2/3} d}-\frac{3 i (a+i a \operatorname{Tan}[c+d x])^{4/3}}{4 a d}$$

Result (type 1, 1 leaves):

???

- **Problem 274: Attempted integration timed out after 120 seconds.**

$$\int \operatorname{Tan}[c+d x] (a+i a \operatorname{Tan}[c+d x])^{1/3} dx$$

Optimal (type 3, 174 leaves, 6 steps):

$$\frac{i a^{1/3} x}{2\times 2^{2/3}}-\frac{\sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d}+\frac{a^{1/3} \operatorname{Log}[\operatorname{Cos}[c+d x]]}{2\times 2^{2/3} d}+\frac{3 a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{2\times 2^{2/3} d}+\frac{3 (a+i a \operatorname{Tan}[c+d x])^{1/3}}{d}$$

Result (type 1, 1 leaves):

???

Problem 275: Result unnecessarily involves higher level functions.

$$\int (a + i a \operatorname{Tan}[c + d x])^{1/3} \, dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$-\frac{a^{1/3} x}{2 \times 2^{2/3}} - \frac{i \sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3} + 2^{2/3} (a + i a \operatorname{Tan}[c + d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d} + \frac{i a^{1/3} \operatorname{Log}[\operatorname{Cos}[c + d x]]}{2 \times 2^{2/3} d} + \frac{3 i a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3} - (a + i a \operatorname{Tan}[c + d x])^{1/3}\right]}{2 \times 2^{2/3} d}$$

Result (type 5, 66 leaves):

$$-\frac{3 i \left(1 + e^{2 i (c + d x)}\right)^{1/3} \operatorname{Hypergeometric2F1}\left[\frac{1}{3}, \frac{1}{3}, \frac{4}{3}, -e^{2 i (c + d x)}\right] (a + i a \operatorname{Tan}[c + d x])^{1/3}}{2 d}$$

Problem 276: Unable to integrate problem.

$$\int \operatorname{Cot}[c + d x] (a + i a \operatorname{Tan}[c + d x])^{1/3} \, dx$$

Optimal (type 3, 260 leaves, 11 steps):

$$-\frac{i a^{1/3} x}{2 \times 2^{2/3}} - \frac{\sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3} + 2 (a + i a \operatorname{Tan}[c + d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{d} + \frac{\sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3} + 2^{2/3} (a + i a \operatorname{Tan}[c + d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d} - \frac{a^{1/3} \operatorname{Log}[\operatorname{Cos}[c + d x]]}{2 \times 2^{2/3} d} - \frac{a^{1/3} \operatorname{Log}[\operatorname{Tan}[c + d x]]}{2 d} + \frac{3 a^{1/3} \operatorname{Log}\left[a^{1/3} - (a + i a \operatorname{Tan}[c + d x])^{1/3}\right]}{2 d} - \frac{3 a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3} - (a + i a \operatorname{Tan}[c + d x])^{1/3}\right]}{2 \times 2^{2/3} d}$$

Result (type 8, 26 leaves):

$$\int \operatorname{Cot}[c + d x] (a + i a \operatorname{Tan}[c + d x])^{1/3} \, dx$$

Problem 277: Attempted integration timed out after 120 seconds.

$$\int \operatorname{Cot}[c + d x]^2 (a + i a \operatorname{Tan}[c + d x])^{1/3} \, dx$$

Optimal (type 3, 299 leaves, 12 steps):

$$\frac{a^{1/3} x}{2 \times 2^{2/3}} - \frac{i a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3} + 2 (a + i a \operatorname{Tan}[c + d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{\sqrt{3} d} + \frac{i \sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3} + 2^{2/3} (a + i a \operatorname{Tan}[c + d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d} - \frac{i a^{1/3} \operatorname{Log}[\operatorname{Cos}[c + d x]]}{2 \times 2^{2/3} d} - \frac{i a^{1/3} \operatorname{Log}[\operatorname{Tan}[c + d x]]}{6 d} + \frac{i a^{1/3} \operatorname{Log}\left[a^{1/3} - (a + i a \operatorname{Tan}[c + d x])^{1/3}\right]}{2 d} - \frac{3 i a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3} - (a + i a \operatorname{Tan}[c + d x])^{1/3}\right]}{2 \times 2^{2/3} d} - \frac{\operatorname{Cot}[c + d x] (a + i a \operatorname{Tan}[c + d x])^{1/3}}{d}$$

Result (type 1, 1 leaves):

???

Problem 278: Attempted integration timed out after 120 seconds.

$$\int \cot[c+d x]^3 \, (a+i a \tan[c+d x])^{1/3} \, dx$$

Optimal (type 3, 327 leaves, 13 steps):

$$\frac{i a^{1/3} x}{2\times 2^{2/3}}+\frac{8 a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2 (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{3 \sqrt{3} d}-\frac{\sqrt{3} a^{1/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{2/3} d}+$$
$$\frac{a^{1/3} \operatorname{Log}[\cos[c+d x]]}{2\times 2^{2/3} d}+\frac{4 a^{1/3} \operatorname{Log}[\tan[c+d x]]}{9 d}-\frac{4 a^{1/3} \operatorname{Log}\left[a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{3 d}+$$
$$\frac{3 a^{1/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{2\times 2^{2/3} d}-\frac{i \cot[c+d x] (a+i a \tan[c+d x])^{1/3}}{6 d}-\frac{\cot[c+d x]^2 (a+i a \tan[c+d x])^{1/3}}{2 d}$$

Result (type 1, 1 leaves):

???

Problem 279: Result unnecessarily involves higher level functions.

$$\int (a+i a \tan[c+d x])^{2/3} \, dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$-\frac{a^{2/3} x}{2\times 2^{1/3}}+\frac{i \sqrt{3} a^{2/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{1/3} d}+\frac{i a^{2/3} \operatorname{Log}[\cos[c+d x]]}{2\times 2^{1/3} d}+\frac{3 i a^{2/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{2\times 2^{1/3} d}$$

Result (type 5, 86 leaves):

$$-\frac{3 i \left(\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{2/3} \left(1+e^{2 i (c+d x)}\right)^{2/3} \operatorname{Hypergeometric2F1}\left[\frac{2}{3}, \frac{2}{3}, \frac{5}{3}, -e^{2 i (c+d x)}\right]}{2\times 2^{1/3} d}$$

Problem 280: Attempted integration timed out after 120 seconds.

$$\int \tan[c+d x]^3 \, (a+i a \tan[c+d x])^{4/3} \, dx$$

Optimal (type 3, 251 leaves, 9 steps):

$$-\frac{i a^{4/3} x}{2^{2/3}}+\frac{2^{1/3} \sqrt{3} a^{4/3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{d}-\frac{a^{4/3} \operatorname{Log}[\cos[c+d x]]}{2^{2/3} d}-\frac{3 a^{4/3} \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{2^{2/3} d}-$$
$$\frac{3 a (a+i a \tan[c+d x])^{1/3}}{d}-\frac{9 (a+i a \tan[c+d x])^{4/3}}{20 d}+\frac{3 \tan[c+d x]^2 (a+i a \tan[c+d x])^{4/3}}{10 d}-\frac{6 (a+i a \tan[c+d x])^{7/3}}{35 a d}$$

Result (type 1, 1 leaves):

???

Problem 281: Attempted integration timed out after 120 seconds.

$$\int \text{Tan}[c+d x]^2 (a+i a \text{Tan}[c+d x])^{4/3} \, dx$$

Optimal (type 3, 203 leaves, 7 steps):

$$\frac{a^{4/3} x}{2^{2/3}}+\frac{i\, 2^{1/3} \sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}-\frac{i a^{4/3} \text{Log}[\text{Cos}[c+d x]]}{2^{2/3} d}-\frac{3 i a^{4/3} \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2^{2/3} d}-\frac{3 i a (a+i a \text{Tan}[c+d x])^{1/3}}{d}-\frac{3 i (a+i a \text{Tan}[c+d x])^{7/3}}{7 a d}$$

Result (type 1, 1 leaves):

???

Problem 282: Attempted integration timed out after 120 seconds.

$$\int \text{Tan}[c+d x] (a+i a \text{Tan}[c+d x])^{4/3} \, dx$$

Optimal (type 3, 192 leaves, 7 steps):

$$\frac{i a^{4/3} x}{2^{2/3}}-\frac{2^{1/3} \sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}+\frac{a^{4/3} \text{Log}[\text{Cos}[c+d x]]}{2^{2/3} d}+\frac{3 a^{4/3} \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2^{2/3} d}+\frac{3 a (a+i a \text{Tan}[c+d x])^{1/3}}{d}+\frac{3 (a+i a \text{Tan}[c+d x])^{4/3}}{4 d}$$

Result (type 1, 1 leaves):

???

Problem 283: Result unnecessarily involves higher level functions.

$$\int (a+i a \text{Tan}[c+d x])^{4/3} \, dx$$

Optimal (type 3, 175 leaves, 6 steps):

$$-\frac{a^{4/3} x}{2^{2/3}}-\frac{i\, 2^{1/3} \sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}+\frac{i a^{4/3} \text{Log}[\text{Cos}[c+d x]]}{2^{2/3} d}+\frac{3 i a^{4/3} \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2^{2/3} d}+\frac{3 i a (a+i a \text{Tan}[c+d x])^{1/3}}{d}$$

Result (type 5, 68 leaves):

$$-\frac{3 i a \left(-1+\left(1+e^{2 i (c+d x)}\right)^{1/3} \text{Hypergeometric2F1}\left[\frac{1}{3}, \frac{1}{3}, \frac{4}{3}, -e^{2 i (c+d x)}\right]\right) (a+i a \text{Tan}[c+d x])^{1/3}}{d}$$

Problem 284: Unable to integrate problem.

$$\int \text{Cot}[c+d x]\,(a+i a \text{Tan}[c+d x])^{4/3}\,dx$$

Optimal (type 3, 254 leaves, 13 steps):

$$-\frac{i a^{4/3} x}{2^{2/3}}-\frac{\sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2 (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}+\frac{2^{1/3} \sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}-\frac{a^{4/3} \text{Log}[\text{Cos}[c+d x]]}{2^{2/3} d}-\frac{a^{4/3} \text{Log}[\text{Tan}[c+d x]]}{2 d}+\frac{3 a^{4/3} \text{Log}\left[a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2 d}-\frac{3 a^{4/3} \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2^{2/3} d}$$

Result (type 8, 26 leaves):

$$\int \text{Cot}[c+d x]\,(a+i a \text{Tan}[c+d x])^{4/3}\,dx$$

Problem 285: Unable to integrate problem.

$$\int \text{Cot}[c+d x]^2\,(a+i a \text{Tan}[c+d x])^{4/3}\,dx$$

Optimal (type 3, 315 leaves, 13 steps):

$$\frac{a^{4/3} x}{2^{2/3}}-\frac{4 i a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2 (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{\sqrt{3}\, d}+\frac{i 2^{1/3} \sqrt{3}\, a^{4/3} \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}-\frac{i a^{4/3} \text{Log}[\text{Cos}[c+d x]]}{2^{2/3} d}-\frac{2 i a^{4/3} \text{Log}[\text{Tan}[c+d x]]}{3 d}+\frac{2 i a^{4/3} \text{Log}\left[a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{d}-\frac{3 i a^{4/3} \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2^{2/3} d}+\frac{i a (a+i a \text{Tan}[c+d x])^{1/3}}{d}-\frac{\text{Cot}[c+d x]\,(a+i a \text{Tan}[c+d x])^{4/3}}{d}$$

Result (type 8, 28 leaves):

$$\int \text{Cot}[c+d x]^2\,(a+i a \text{Tan}[c+d x])^{4/3}\,dx$$

Problem 286: Attempted integration timed out after 120 seconds.

$$\int \text{Cot}[c+d x]^3\,(a+i a \text{Tan}[c+d x])^{4/3}\,dx$$

Optimal (type 3, 321 leaves, 13 steps):

$$\frac{i\, a^{4/3}\, x}{2^{2/3}}+\frac{11\, a^{4/3}\, \text{ArcTan}\left[\frac{a^{1/3}+2\, (a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{3\, \sqrt{3}\, d}-\frac{2^{1/3}\, \sqrt{3}\, a^{4/3}\, \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\, (a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}+$$

$$\frac{a^{4/3}\, \text{Log}[\text{Cos}[c+d\, x]]}{2^{2/3}\, d}+\frac{11\, a^{4/3}\, \text{Log}[\text{Tan}[c+d\, x]]}{18\, d}-\frac{11\, a^{4/3}\, \text{Log}\left[a^{1/3}-(a+i\, a\, \text{Tan}[c+d\, x])^{1/3}\right]}{6\, d}+$$

$$\frac{3\, a^{4/3}\, \text{Log}\left[2^{1/3}\, a^{1/3}-(a+i\, a\, \text{Tan}[c+d\, x])^{1/3}\right]}{2^{2/3}\, d}-\frac{2\, i\, a\, \text{Cot}[c+d\, x]\, (a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}{3\, d}-\frac{\text{Cot}[c+d\, x]^2\, (a+i\, a\, \text{Tan}[c+d\, x])^{4/3}}{2\, d}$$

Result (type 1, 1 leaves):

???

Problem 287: Result unnecessarily involves higher level functions.

$$\int (a+i\, a\, \text{Tan}[c+d\, x])^{5/3}\, dx$$

Optimal (type 3, 177 leaves, 6 steps):

$$-\frac{a^{5/3}\, x}{2^{1/3}}+\frac{i\, 2^{2/3}\, \sqrt{3}\, a^{5/3}\, \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\, (a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}{\sqrt{3}\, a^{1/3}}\right]}{d}+\frac{i\, a^{5/3}\, \text{Log}[\text{Cos}[c+d\, x]]}{2^{1/3}\, d}+$$

$$\frac{3\, i\, a^{5/3}\, \text{Log}\left[2^{1/3}\, a^{1/3}-(a+i\, a\, \text{Tan}[c+d\, x])^{1/3}\right]}{2^{1/3}\, d}+\frac{3\, i\, a\, (a+i\, a\, \text{Tan}[c+d\, x])^{2/3}}{2\, d}$$

Result (type 5, 88 leaves):

$$-\frac{3\, i\, a\, \left(\frac{a\, e^{2\, i\, (c+d\, x)}}{1+e^{2\, i\, (c+d\, x)}}\right)^{2/3}\, \left(-1+\left(1+e^{2\, i\, (c+d\, x)}\right)^{2/3}\, \text{Hypergeometric2F1}\left[\frac{2}{3},\, \frac{2}{3},\, \frac{5}{3},\, -e^{2\, i\, (c+d\, x)}\right]\right)}{2^{1/3}\, d}$$

Problem 288: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Tan}[c+d\, x]^m}{(a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}\, dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{\text{AppellF1}\left[1+m,\, \frac{4}{3},\, 1,\, 2+m,\, -i\, \text{Tan}[c+d\, x],\, i\, \text{Tan}[c+d\, x]\right]\, (1+i\, \text{Tan}[c+d\, x])^{1/3}\, \text{Tan}[c+d\, x]^{1+m}}{d\, (1+m)\, (a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}$$

Result (type 1, 1 leaves):

???

Problem 289: Unable to integrate problem.

$$\int \frac{\sqrt{\text{Tan}[c+d\, x]}}{(a+i\, a\, \text{Tan}[c+d\, x])^{1/3}}\, dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{2\,\text{AppellF1}\left[\frac{3}{2},\frac{4}{3},1,\frac{5}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{1/3}\,\text{Tan}[c+d\,x]^{3/2}}{3\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 8, 30 leaves):

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}\,dx$$

Problem 290: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Tan}[c+d\,x]^4}{(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}\,dx$$

Optimal (type 3, 282 leaves, 9 steps):

$$-\frac{x}{4\times 2^{1/3}\,a^{1/3}}+\frac{i\,\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2\times 2^{1/3}\,a^{1/3}\,d}+\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{4\times 2^{1/3}\,a^{1/3}\,d}+\frac{3\,i\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\times 2^{1/3}\,a^{1/3}\,d}-$$
$$\frac{15\,i\,\text{Tan}[c+d\,x]^2}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}+\frac{3\,\text{Tan}[c+d\,x]^3}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}+\frac{45\,i\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}{8\,a\,d}-\frac{39\,i\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/3}}{20\,a^2\,d}$$

Result (type 5, 131 leaves):

$$-\left(3\,i\,\text{Sec}[c+d\,x]^3\left(5\,e^{-i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{8/3}\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]-\right.\right.$$
$$\left.\left.4\,(37\,\text{Cos}[c+d\,x]+12\,\text{Cos}[3\,(c+d\,x)]+2\,i\,\text{Sin}[c+d\,x]+7\,i\,\text{Sin}[3\,(c+d\,x)])\right)\right)\Big/\left(160\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

Problem 291: Result unnecessarily involves higher level functions.

$$\int\frac{\text{Tan}[c+d\,x]^3}{(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}\,dx$$

Optimal (type 3, 237 leaves, 8 steps):

$$-\frac{i\,x}{4\times 2^{1/3}\,a^{1/3}}-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2\times 2^{1/3}\,a^{1/3}\,d}-\frac{\text{Log}[\text{Cos}[c+d\,x]]}{4\times 2^{1/3}\,a^{1/3}\,d}-$$
$$\frac{3\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\times 2^{1/3}\,a^{1/3}\,d}+\frac{21}{10\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}+\frac{3\,\text{Tan}[c+d\,x]^2}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}+\frac{3\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}{10\,a\,d}$$

Result (type 5, 98 leaves):

$$\left(3\,\text{Sec}[c+d\,x]^2\left(40+24\,\text{Cos}[2\,(c+d\,x)]+5\left(1+e^{2\,i\,(c+d\,x)}\right)^{5/3}\,\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]+4\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$
$$\left(80\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

Problem 292: Result unnecessarily involves higher level functions.

$$\int \frac{\tan[c+d x]^2}{(a+i a \tan[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 213 leaves, 7 steps):

$$\frac{x}{4\times 2^{1/3} a^{1/3}}-\frac{i \sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2\times 2^{1/3} a^{1/3} d}-\frac{i \operatorname{Log}[\cos[c+d x]]}{4\times 2^{1/3} a^{1/3} d}-\frac{3 i \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{4\times 2^{1/3} a^{1/3} d}-\frac{3 i}{2 d (a+i a \tan[c+d x])^{1/3}}-\frac{3 i (a+i a \tan[c+d x])^{2/3}}{2 a d}$$

Result (type 5, 108 leaves):

$$\frac{3 i \left(-2-6 e^{2 i (c+d x)}+e^{2 i (c+d x)} \left(1+e^{2 i (c+d x)}\right)^{2/3} \operatorname{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2 i (c+d x)}\right]\right)}{4 d \left(1+e^{2 i (c+d x)}\right) (a+i a \tan[c+d x])^{1/3}}$$

Problem 293: Result unnecessarily involves higher level functions.

$$\int \frac{\tan[c+d x]}{(a+i a \tan[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 178 leaves, 6 steps):

$$\frac{i x}{4\times 2^{1/3} a^{1/3}}+\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2\times 2^{1/3} a^{1/3} d}+\frac{\operatorname{Log}[\cos[c+d x]]}{4\times 2^{1/3} a^{1/3} d}+\frac{3 \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{4\times 2^{1/3} a^{1/3} d}-\frac{3}{2 d (a+i a \tan[c+d x])^{1/3}}$$

Result (type 5, 140 leaves):

$$-\left(3 \left(2 \left(1+e^{2 i d x}\right) \cos[c]+e^{i (c+2 d x)} \left(1+e^{2 i (c+d x)}\right)^{2/3} \operatorname{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2 i (c+d x)}\right]+2 i \left(-1+e^{2 i d x}\right) \sin[c]\right)\right) \Big/ \left(4 d \left(\left(1+e^{2 i d x}\right) \cos[c]+i \left(-1+e^{2 i d x}\right) \sin[c]\right) (a+i a \tan[c+d x])^{1/3}\right)$$

Problem 294: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+i a \tan[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 184 leaves, 6 steps):

$$-\frac{x}{4\times 2^{1/3} a^{1/3}}+\frac{i \sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \tan[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2\times 2^{1/3} a^{1/3} d}+\frac{i \operatorname{Log}[\cos[c+d x]]}{4\times 2^{1/3} a^{1/3} d}+\frac{3 i \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \tan[c+d x])^{1/3}\right]}{4\times 2^{1/3} a^{1/3} d}+\frac{3 i}{2 d (a+i a \tan[c+d x])^{1/3}}$$

Result (type 5, 141 leaves):

$$\left(3\left(-2\left(1+e^{2 i d x}\right) \operatorname{Cos}[c]+e^{i(c+2 d x)}\left(1+e^{2 i(c+d x)}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3}, \frac{2}{3}, \frac{5}{3}, -e^{2 i(c+d x)}\right]-2 i\left(-1+e^{2 i d x}\right) \operatorname{Sin}[c]\right)\right) \Big/ \left(4 d\left(i\left(1+e^{2 i d x}\right) \operatorname{Cos}[c]-\left(-1+e^{2 i d x}\right) \operatorname{Sin}[c]\right)(a+i a \operatorname{Tan}[c+d x])^{1/3}\right)$$

Problem 295: Unable to integrate problem.

$$\int \frac{\operatorname{Cot}[c+d x]}{(a+i a \operatorname{Tan}[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 286 leaves, 13 steps):

$$-\frac{i x}{4\times 2^{1/3} a^{1/3}}+\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2(a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{a^{1/3} d}-\frac{\sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2\times 2^{1/3} a^{1/3} d}-\frac{\operatorname{Log}[\operatorname{Cos}[c+d x]]}{4\times 2^{1/3} a^{1/3} d}-\frac{\operatorname{Log}[\operatorname{Tan}[c+d x]]}{2 a^{1/3} d}+\frac{3 \operatorname{Log}\left[a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{2 a^{1/3} d}-\frac{3 \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{4\times 2^{1/3} a^{1/3} d}+\frac{3}{2 d(a+i a \operatorname{Tan}[c+d x])^{1/3}}$$

Result (type 8, 26 leaves):

$$\int \frac{\operatorname{Cot}[c+d x]}{(a+i a \operatorname{Tan}[c+d x])^{1/3}} \, dx$$

Problem 296: Unable to integrate problem.

$$\int \frac{\operatorname{Cot}[c+d x]^2}{(a+i a \operatorname{Tan}[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 327 leaves, 13 steps):

$$\frac{x}{4\times 2^{1/3} a^{1/3}}-\frac{i \operatorname{ArcTan}\left[\frac{a^{1/3}+2(a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{\sqrt{3} a^{1/3} d}-\frac{i \sqrt{3} \operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+i a \operatorname{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2\times 2^{1/3} a^{1/3} d}-\frac{i \operatorname{Log}[\operatorname{Cos}[c+d x]]}{4\times 2^{1/3} a^{1/3} d}+\frac{i \operatorname{Log}[\operatorname{Tan}[c+d x]]}{6 a^{1/3} d}-\frac{i \operatorname{Log}\left[a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{2 a^{1/3} d}-\frac{3 i \operatorname{Log}\left[2^{1/3} a^{1/3}-(a+i a \operatorname{Tan}[c+d x])^{1/3}\right]}{4\times 2^{1/3} a^{1/3} d}-\frac{5 i}{2 d(a+i a \operatorname{Tan}[c+d x])^{1/3}}-\frac{\operatorname{Cot}[c+d x]}{d(a+i a \operatorname{Tan}[c+d x])^{1/3}}$$

Result (type 8, 28 leaves):

$$\int \frac{\operatorname{Cot}[c+d x]^2}{(a+i a \operatorname{Tan}[c+d x])^{1/3}} \, dx$$

Problem 297: Result unnecessarily involves higher level functions.

$$\int \frac{1}{(a+i a \operatorname{Tan}[c+d x])^{2/3}} \, dx$$

Optimal (type 3, 184 leaves, 6 steps):

$$-\frac{x}{4\times 2^{2/3}\,a^{2/3}}-\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2\times 2^{2/3}\,a^{2/3}\,d}+$$
$$\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{4\times 2^{2/3}\,a^{2/3}\,d}+\frac{3\,i\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\times 2^{2/3}\,a^{2/3}\,d}+\frac{3\,i}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}$$

Result (type 5, 141 leaves) :

$$\left(3\left(1+e^{2\,i\,d\,x}\right)\text{Cos}[c]-6\,e^{i\,(c+2\,d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-e^{2\,i\,(c+d\,x)}\right]+3\,i\left(-1+e^{2\,i\,d\,x}\right)\text{Sin}[c]\right)\Big/$$
$$\left(4\,d\left(-i\left(1+e^{2\,i\,d\,x}\right)\text{Cos}[c]+\left(-1+e^{2\,i\,d\,x}\right)\text{Sin}[c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}\right)$$

- **Problem 298: Unable to integrate problem.**

$$\int\frac{\text{Tan}[c+d\,x]^m}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 6, 86 leaves, 3 steps) :

$$\frac{\text{AppellF1}\left[1+m,\frac{7}{3},1,2+m,-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right](1+i\,\text{Tan}[c+d\,x])^{1/3}\,\text{Tan}[c+d\,x]^{1+m}}{a\,d\,(1+m)\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 8, 28 leaves) :

$$\int\frac{\text{Tan}[c+d\,x]^m}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

- **Problem 299: Unable to integrate problem.**

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 6, 84 leaves, 4 steps) :

$$\frac{2\,\text{AppellF1}\left[\frac{3}{2},\frac{7}{3},1,\frac{5}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right](1+i\,\text{Tan}[c+d\,x])^{1/3}\,\text{Tan}[c+d\,x]^{3/2}}{3\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 8, 30 leaves) :

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

- **Problem 300: Result unnecessarily involves higher level functions.**

$$\int\frac{\text{Tan}[c+d\,x]^4}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 282 leaves, 9 steps) :

$$-\frac{x}{8\times 2^{1/3}a^{4/3}}+\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{1/3}a^{4/3}d}+\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{1/3}a^{4/3}d}+\frac{3\,i\,\text{Log}\left[2^{1/3}a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{1/3}a^{4/3}d}-\frac{39\,i\,\text{Tan}[c+d\,x]^2}{40\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{3\,\text{Tan}[c+d\,x]^3}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}-\frac{51\,i}{10\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}-\frac{87\,i\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}{40\,a^2\,d}$$

Result (type 5, 141 leaves):

$$-\left(3\,\text{Sec}[c+d\,x]^3\left(275\,\text{Cos}[c+d\,x]+113\,\text{Cos}[3\,(c+d\,x)]+5\,e^{i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{5/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]+150\,i\,\text{Sin}[c+d\,x]+118\,i\,\text{Sin}[3\,(c+d\,x)]\right)\right)\Big/\left(160\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

- **Problem 301: Result unnecessarily involves higher level functions.**

$$\int\frac{\text{Tan}[c+d\,x]^3}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 237 leaves, 8 steps):

$$-\frac{i\,x}{8\times 2^{1/3}a^{4/3}}-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{1/3}a^{4/3}d}-\frac{\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{1/3}a^{4/3}d}-\frac{3\,\text{Log}\left[2^{1/3}a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{1/3}a^{4/3}d}+\frac{15}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{3\,\text{Tan}[c+d\,x]^2}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}-\frac{27}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 5, 126 leaves):

$$\left(3\,i\,\text{Sec}[c+d\,x]^2\left(9+17\,\text{Cos}[2\,(c+d\,x)]-e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]+18\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(16\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

- **Problem 302: Result unnecessarily involves higher level functions.**

$$\int\frac{\text{Tan}[c+d\,x]^2}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 213 leaves, 7 steps):

$$\frac{x}{8\times 2^{1/3}a^{4/3}}-\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{1/3}a^{4/3}d}-\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{1/3}a^{4/3}d}-\frac{3\,i\,\text{Log}\left[2^{1/3}a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{1/3}a^{4/3}d}-\frac{3\,i}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{9\,i}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 5, 123 leaves):

$$\left(3\,\text{Sec}[c+d\,x]^2\left(5+5\,\text{Cos}[2\,(c+d\,x)]+e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]+6\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(16\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

- **Problem 303: Result unnecessarily involves higher level functions.**

$$\int\frac{\text{Tan}[c+d\,x]}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 205 leaves, 7 steps) :

$$\frac{i\,x}{8\times2^{1/3}\,a^{4/3}}+\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times2^{1/3}\,a^{4/3}\,d}+\frac{\text{Log}[\text{Cos}[c+d\,x]]}{8\times2^{1/3}\,a^{4/3}\,d}+\frac{3\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times2^{1/3}\,a^{4/3}\,d}-\frac{3}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{3}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 5, 125 leaves) :

$$\left(3\,i\,\text{Sec}[c+d\,x]^2\left(-1-\text{Cos}[2\,(c+d\,x)]+e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]-2\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(16\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

- **Problem 304: Result unnecessarily involves higher level functions.**

$$\int\frac{1}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 213 leaves, 7 steps) :

$$-\frac{x}{8\times2^{1/3}\,a^{4/3}}+\frac{i\,\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times2^{1/3}\,a^{4/3}\,d}+\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{8\times2^{1/3}\,a^{4/3}\,d}+\frac{3\,i\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times2^{1/3}\,a^{4/3}\,d}+\frac{3\,i}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{3\,i}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 5, 124 leaves) :

$$\left(3\,\text{Sec}[c+d\,x]^2\left(3+3\,\text{Cos}[2\,(c+d\,x)]-e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]+2\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(16\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right)$$

- **Problem 305: Unable to integrate problem.**

$$\int\frac{\text{Cot}[c+d\,x]}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 313 leaves, 15 steps) :

$$-\frac{i x}{8\times 2^{1/3} a^{4/3}}+\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{a^{4/3}\,d}-\frac{\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{1/3}\,a^{4/3}\,d}-\frac{\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{1/3}\,a^{4/3}\,d}-\frac{\text{Log}[\text{Tan}[c+d\,x]]}{2\,a^{4/3}\,d}+\frac{3\,\text{Log}\left[a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{2\,a^{4/3}\,d}-\frac{3\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{1/3}\,a^{4/3}\,d}+\frac{3}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}+\frac{9}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 8, 26 leaves) :

$$\int\frac{\text{Cot}[c+d\,x]}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Problem 306: Unable to integrate problem.

$$\int\frac{\text{Cot}[c+d\,x]^2}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 354 leaves, 14 steps) :

$$\frac{x}{8\times 2^{1/3}\,a^{4/3}}-\frac{4\,i\,\text{ArcTan}\left[\frac{a^{1/3}+2\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{4/3}\,d}-\frac{i\,\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{1/3}\,a^{4/3}\,d}-\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{1/3}\,a^{4/3}\,d}+\frac{2\,i\,\text{Log}[\text{Tan}[c+d\,x]]}{3\,a^{4/3}\,d}-\frac{2\,i\,\text{Log}\left[a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{a^{4/3}\,d}-\frac{3\,i\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{1/3}\,a^{4/3}\,d}-\frac{11\,i}{8\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}-\frac{\text{Cot}[c+d\,x]}{d\,(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}-\frac{19\,i}{4\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 8, 28 leaves) :

$$\int\frac{\text{Cot}[c+d\,x]^2}{(a+i\,a\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Problem 307: Result unnecessarily involves higher level functions.

$$\int\frac{1}{(a+i\,a\,\text{Tan}[c+d\,x])^{5/3}}\,dx$$

Optimal (type 3, 213 leaves, 7 steps) :

$$-\frac{x}{8\times 2^{2/3}\,a^{5/3}}-\frac{i\,\sqrt{3}\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{4\times 2^{2/3}\,a^{5/3}\,d}+\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{8\times 2^{2/3}\,a^{5/3}\,d}+\frac{3\,i\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{8\times 2^{2/3}\,a^{5/3}\,d}+\frac{3\,i}{10\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/3}}+\frac{3\,i}{8\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}$$

Result (type 5, 124 leaves) :

$$\left(3\,\text{Sec}[c+d\,x]^2\left(9+9\,\text{Cos}[2\,(c+d\,x)]-10\,e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{1/3}\text{Hypergeometric2F1}\left[\frac{1}{3},\frac{1}{3},\frac{4}{3},-e^{2\,i\,(c+d\,x)}\right]+5\,i\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(80\,a\,d\,(-i+\text{Tan}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}\right)$$

Problem 308: Unable to integrate problem.

$$\int (e\,\text{Tan}[c+d\,x])^m\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 43 leaves, 2 steps):

$$\frac{a\,\text{Hypergeometric2F1}[1,1+m,2+m,i\,\text{Tan}[c+d\,x]]\,(e\,\text{Tan}[c+d\,x])^{1+m}}{d\,e\,(1+m)}$$

Result (type 8, 26 leaves):

$$\int (e\,\text{Tan}[c+d\,x])^m\,(a+i\,a\,\text{Tan}[c+d\,x])\,dx$$

Problem 310: Unable to integrate problem.

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^4\,dx$$

Optimal (type 5, 189 leaves, 6 steps):

$$-\frac{2\,a^4\left(16+11\,n+2\,n^2\right)(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)\,(2+n)\,(3+n)}+\frac{8\,a^4\,\text{Hypergeometric2F1}[1,1+n,2+n,i\,\text{Tan}[e+f\,x]]\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}-\frac{(d\,\text{Tan}[e+f\,x])^{1+n}\left(a^2+i\,a^2\,\text{Tan}[e+f\,x]\right)^2}{d\,f\,(3+n)}-\frac{2\,(4+n)\,(d\,\text{Tan}[e+f\,x])^{1+n}\left(a^4+i\,a^4\,\text{Tan}[e+f\,x]\right)}{d\,f\,(2+n)\,(3+n)}$$

Result (type 8, 28 leaves):

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^4\,dx$$

Problem 311: Unable to integrate problem.

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,dx$$

Optimal (type 5, 127 leaves, 5 steps):

$$-\frac{a^3\,(5+2\,n)\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)\,(2+n)}+\frac{4\,a^3\,\text{Hypergeometric2F1}[1,1+n,2+n,i\,\text{Tan}[e+f\,x]]\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}-\frac{(d\,\text{Tan}[e+f\,x])^{1+n}\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)}{d\,f\,(2+n)}$$

Result (type 8, 28 leaves):

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,dx$$

Problem 312: Unable to integrate problem.

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])^2\,dx$$

Optimal (type 5, 75 leaves, 4 steps):

$$-\frac{a^2\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}+\frac{2\,a^2\,\text{Hypergeometric2F1}[1,\,1+n,\,2+n,\,\mathbb{i}\,\text{Tan}[e+f\,x]]\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}$$

Result (type 8, 28 leaves):

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])^2\,dx$$

Problem 313: Unable to integrate problem.

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])\,dx$$

Optimal (type 5, 43 leaves, 2 steps):

$$\frac{a\,\text{Hypergeometric2F1}[1,\,1+n,\,2+n,\,\mathbb{i}\,\text{Tan}[e+f\,x]]\,(d\,\text{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}$$

Result (type 8, 26 leaves):

$$\int (d\,\text{Tan}[e+f\,x])^n\,(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])\,dx$$

Problem 314: Unable to integrate problem.

$$\int \frac{(d\,\text{Tan}[e+f\,x])^n}{a+\mathbb{i}\,a\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 5, 158 leaves, 6 steps):

$$\frac{(1-n)\,\text{Hypergeometric2F1}\left[1,\,\frac{1+n}{2},\,\frac{3+n}{2},\,-\text{Tan}[e+f\,x]^2\right]\,(d\,\text{Tan}[e+f\,x])^{1+n}}{2\,a\,d\,f\,(1+n)}+$$
$$\frac{\mathbb{i}\,n\,\text{Hypergeometric2F1}\left[1,\,\frac{2+n}{2},\,\frac{4+n}{2},\,-\text{Tan}[e+f\,x]^2\right]\,(d\,\text{Tan}[e+f\,x])^{2+n}}{2\,a\,d^2\,f\,(2+n)}+\frac{(d\,\text{Tan}[e+f\,x])^{1+n}}{2\,d\,f\,(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])}$$

Result (type 8, 28 leaves):

$$\int \frac{(d\,\text{Tan}[e+f\,x])^n}{a+\mathbb{i}\,a\,\text{Tan}[e+f\,x]}\,dx$$

Problem 315: Unable to integrate problem.

$$\int \frac{(d\,\text{Tan}[e+f\,x])^n}{(a+\mathbb{i}\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 209 leaves, 7 steps):

$$\frac{(1-n)^2\,\text{Hypergeometric2F1}\left[1,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{1+n}}{4 a^2 d f (1+n)}+\frac{(2-n)(d\,\text{Tan}[e+f x])^{1+n}}{4 a^2 d f (1+i\,\text{Tan}[e+f x])}+$$
$$\frac{i(2-n)\,n\,\text{Hypergeometric2F1}\left[1,\frac{2+n}{2},\frac{4+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{2+n}}{4 a^2 d^2 f (2+n)}+\frac{(d\,\text{Tan}[e+f x])^{1+n}}{4 d f (a+i a\,\text{Tan}[e+f x])^2}$$

Result (type 8, 28 leaves) :

$$\int\frac{(d\,\text{Tan}[e+f x])^n}{(a+i a\,\text{Tan}[e+f x])^2}\,dx$$

Problem 316: Unable to integrate problem.

$$\int\frac{(d\,\text{Tan}[e+f x])^n}{(a+i a\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 5, 274 leaves, 8 steps) :

$$\frac{(1-2n)(1-n)(3-n)\,\text{Hypergeometric2F1}\left[1,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{1+n}}{24 a^3 d f (1+n)}+$$
$$\frac{i(5-2n)(2-n)\,n\,\text{Hypergeometric2F1}\left[1,\frac{2+n}{2},\frac{4+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{2+n}}{24 a^3 d^2 f (2+n)}+$$
$$\frac{(d\,\text{Tan}[e+f x])^{1+n}}{6 d f (a+i a\,\text{Tan}[e+f x])^3}+\frac{(7-2n)(d\,\text{Tan}[e+f x])^{1+n}}{24 a d f (a+i a\,\text{Tan}[e+f x])^2}+\frac{(5-2n)(2-n)(d\,\text{Tan}[e+f x])^{1+n}}{24 d f \left(a^3+i a^3\,\text{Tan}[e+f x]\right)}$$

Result (type 8, 28 leaves) :

$$\int\frac{(d\,\text{Tan}[e+f x])^n}{(a+i a\,\text{Tan}[e+f x])^3}\,dx$$

Problem 317: Unable to integrate problem.

$$\int\frac{(d\,\text{Tan}[e+f x])^n}{(a+i a\,\text{Tan}[e+f x])^4}\,dx$$

Optimal (type 5, 326 leaves, 9 steps) :

$$\frac{(1-n)(3-n)\left(1-4n+n^2\right)\text{Hypergeometric2F1}\left[1,\frac{1+n}{2},\frac{3+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{1+n}}{48 a^4 d f (1+n)}+\frac{\left(13-7n+n^2\right)(d\,\text{Tan}[e+f x])^{1+n}}{48 a^4 d f (1+i\,\text{Tan}[e+f x])^2}+$$
$$\frac{(2-n)^2(4-n)(d\,\text{Tan}[e+f x])^{1+n}}{48 a^4 d f (1+i\,\text{Tan}[e+f x])}+\frac{i(2-n)^2(4-n)\,n\,\text{Hypergeometric2F1}\left[1,\frac{2+n}{2},\frac{4+n}{2},-\text{Tan}[e+f x]^2\right](d\,\text{Tan}[e+f x])^{2+n}}{48 a^4 d^2 f (2+n)}+$$
$$\frac{(d\,\text{Tan}[e+f x])^{1+n}}{8 d f (a+i a\,\text{Tan}[e+f x])^4}+\frac{(5-n)(d\,\text{Tan}[e+f x])^{1+n}}{24 a d f (a+i a\,\text{Tan}[e+f x])^3}$$

Result (type 8, 28 leaves) :

$$\int \frac{(d\,\mathrm{Tan}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^4}\,dx$$

- **Problem 320: Unable to integrate problem.**

$$\int (d\,\mathrm{Tan}[e+f\,x])^n\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 6, 89 leaves, 3 steps):

$$\frac{a\,\mathrm{AppellF1}\left[1+n,\,-\frac{1}{2},\,1,\,2+n,\,-i\,\mathrm{Tan}[e+f\,x],\,i\,\mathrm{Tan}[e+f\,x]\right]\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}{d\,f\,(1+n)\,\sqrt{1+i\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 8, 30 leaves):

$$\int (d\,\mathrm{Tan}[e+f\,x])^n\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,dx$$

- **Problem 321: Unable to integrate problem.**

$$\int (d\,\mathrm{Tan}[e+f\,x])^n\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 6, 89 leaves, 3 steps):

$$\frac{a\,\mathrm{AppellF1}\left[1+n,\,\frac{1}{2},\,1,\,2+n,\,-i\,\mathrm{Tan}[e+f\,x],\,i\,\mathrm{Tan}[e+f\,x]\right]\,\sqrt{1+i\,\mathrm{Tan}[e+f\,x]}\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 8, 30 leaves):

$$\int (d\,\mathrm{Tan}[e+f\,x])^n\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

- **Problem 322: Attempted integration timed out after 120 seconds.**

$$\int \frac{(d\,\mathrm{Tan}[e+f\,x])^n}{\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 6, 88 leaves, 3 steps):

$$\frac{\mathrm{AppellF1}\left[1+n,\,\frac{3}{2},\,1,\,2+n,\,-i\,\mathrm{Tan}[e+f\,x],\,i\,\mathrm{Tan}[e+f\,x]\right]\,\sqrt{1+i\,\mathrm{Tan}[e+f\,x]}\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 1, 1 leaves):

???

- **Problem 323: Unable to integrate problem.**

$$\int \frac{(d\,\mathrm{Tan}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 6, 91 leaves, 3 steps):

$$\frac{\text{AppellF1}\left[1+n,\frac{5}{2},1,2+n,-i\,\text{Tan}[e+f\,x],i\,\text{Tan}[e+f\,x]\right]\sqrt{1+i\,\text{Tan}[e+f\,x]}\,(d\,\text{Tan}[e+f\,x])^{1+n}}{a\,d\,f\,(1+n)\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 30 leaves):

$$\int\frac{(d\,\text{Tan}[e+f\,x])^n}{(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

- **Problem 324: Unable to integrate problem.**

$$\int(d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,dx$$

Optimal (type 6, 88 leaves, 3 steps):

$$\frac{1}{d\,f\,(1+n)}\text{AppellF1}[1+n,1-m,1,2+n,-i\,\text{Tan}[e+f\,x],i\,\text{Tan}[e+f\,x]]\,(1+i\,\text{Tan}[e+f\,x])^{-m}\,(d\,\text{Tan}[e+f\,x])^{1+n}\,(a+i\,a\,\text{Tan}[e+f\,x])^m$$

Result (type 8, 28 leaves):

$$\int(d\,\text{Tan}[e+f\,x])^n\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,dx$$

- **Problem 325: Unable to integrate problem.**

$$\int\text{Tan}[c+d\,x]^4\,(a+i\,a\,\text{Tan}[c+d\,x])^m\,dx$$

Optimal (type 5, 205 leaves, 6 steps):

$$\frac{2\,i\,(a+i\,a\,\text{Tan}[c+d\,x])^m}{d\left(6+5\,m+m^2\right)}-\frac{i\,\text{Hypergeometric2F1}\left[1,m,1+m,\frac{1}{2}(1+i\,\text{Tan}[c+d\,x])\right](a+i\,a\,\text{Tan}[c+d\,x])^m}{2\,d\,m}-$$
$$\frac{i\,m\,\text{Tan}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^m}{d\left(6+5\,m+m^2\right)}+\frac{\text{Tan}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])^m}{d\,(3+m)}+\frac{i\left(6+3\,m+m^2\right)(a+i\,a\,\text{Tan}[c+d\,x])^{1+m}}{a\,d\,(1+m)\,(2+m)\,(3+m)}$$

Result (type 8, 26 leaves):

$$\int\text{Tan}[c+d\,x]^4\,(a+i\,a\,\text{Tan}[c+d\,x])^m\,dx$$

- **Problem 326: Unable to integrate problem.**

$$\int\text{Tan}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])^m\,dx$$

Optimal (type 5, 144 leaves, 5 steps):

$$-\frac{2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{d\,m\,(2+m)}+\frac{\mathrm{Hypergeometric2F1}\left[1,\,m,\,1+m,\,\frac{1}{2}\,(1+i\,\mathrm{Tan}[c+d\,x])\right]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{2\,d\,m}+\frac{\mathrm{Tan}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{d\,(2+m)}-\frac{m\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{1+m}}{a\,d\,\left(2+3\,m+m^2\right)}$$

Result (type 8, 26 leaves) :

$$\int \mathrm{Tan}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m\,dx$$

- **Problem 327: Unable to integrate problem.**

$$\int \mathrm{Tan}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m\,dx$$

Optimal (type 5, 82 leaves, 3 steps) :

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[1,\,m,\,1+m,\,\frac{1}{2}\,(1+i\,\mathrm{Tan}[c+d\,x])\right]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{2\,d\,m}-\frac{i\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{1+m}}{a\,d\,(1+m)}$$

Result (type 8, 26 leaves) :

$$\int \mathrm{Tan}[c+d\,x]^2\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m\,dx$$

- **Problem 328: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[c+d\,x]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m\,dx$$

Optimal (type 5, 70 leaves, 3 steps) :

$$\frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{d\,m}-\frac{\mathrm{Hypergeometric2F1}\left[1,\,m,\,1+m,\,\frac{1}{2}\,(1+i\,\mathrm{Tan}[c+d\,x])\right]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{2\,d\,m}$$

Result (type 5, 153 leaves) :

$$\frac{1}{d\,m\,(1+m)}2^{-1+m}\,\left(e^{i\,d\,x}\right)^m\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^m\,\left(1+m-e^{2\,i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^m\,m\,\mathrm{Hypergeometric2F1}\left[1+m,\,1+m,\,2+m,\,-e^{2\,i\,(c+d\,x)}\right]\right)$$
$$\mathrm{Sec}[c+d\,x]^{-m}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^{-m}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m$$

- **Problem 329: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\mathrm{Tan}[c+d\,x])^m\,dx$$

Optimal (type 5, 49 leaves, 2 steps) :

$$-\frac{i\,\mathrm{Hypergeometric2F1}\left[1,\,m,\,1+m,\,\frac{1}{2}\,(1+i\,\mathrm{Tan}[c+d\,x])\right]\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^m}{2\,d\,m}$$

Result (type 5, 130 leaves) :

$$-\frac{1}{d\,m} i\, 2^{-1+m} \left(e^{i d x}\right)^m \left(\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^m \left(1+e^{2 i (c+d x)}\right)^m$$
$$\text{Hypergeometric2F1}\left[m, m, 1+m, -e^{2 i (c+d x)}\right] \text{Sec}[c+d x]^{-m} (\text{Cos}[d x]+i \text{Sin}[d x])^{-m} (a+i a \text{Tan}[c+d x])^m$$

Problem 330: Unable to integrate problem.

$$\int \text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^m \, dx$$

Optimal (type 5, 89 leaves, 5 steps):

$$\frac{\text{Hypergeometric2F1}\left[1, m, 1+m, \frac{1}{2} (1+i \text{Tan}[c+d x])\right] (a+i a \text{Tan}[c+d x])^m}{2 d m} - \frac{\text{Hypergeometric2F1}[1, m, 1+m, 1+i \text{Tan}[c+d x]] (a+i a \text{Tan}[c+d x])^m}{d m}$$

Result (type 8, 24 leaves):

$$\int \text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^m \, dx$$

Problem 331: Unable to integrate problem.

$$\int \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^m \, dx$$

Optimal (type 5, 116 leaves, 6 steps):

$$-\frac{\text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^m}{d} + \frac{i \text{Hypergeometric2F1}\left[1, m, 1+m, \frac{1}{2} (1+i \text{Tan}[c+d x])\right] (a+i a \text{Tan}[c+d x])^m}{2 d m} - \frac{i \text{Hypergeometric2F1}[1, m, 1+m, 1+i \text{Tan}[c+d x]] (a+i a \text{Tan}[c+d x])^m}{d}$$

Result (type 8, 26 leaves):

$$\int \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^m \, dx$$

Problem 332: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^m \, dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{1}{5 d} 2 \text{AppellF1}\left[\frac{5}{2}, 1-m, 1, \frac{7}{2}, -i \text{Tan}[c+d x], i \text{Tan}[c+d x]\right] (1+i \text{Tan}[c+d x])^{-m} \text{Tan}[c+d x]^{5/2} (a+i a \text{Tan}[c+d x])^m$$

Result (type 8, 28 leaves):

$$\int \text{Tan}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^m \, dx$$

Problem 333: Unable to integrate problem.

$$\int \sqrt{\tan(c+d x)}\,(a+i a \tan(c+d x))^m \, dx$$

Optimal (type 6, 81 leaves, 4 steps):

$$\frac{1}{3 d} 2\,\text{AppellF1}\left[\frac{3}{2}, 1-m, 1, \frac{5}{2}, -i \tan(c+d x), i \tan(c+d x)\right] (1+i \tan(c+d x))^{-m} \tan(c+d x)^{3/2} (a+i a \tan(c+d x))^m$$

Result (type 8, 28 leaves):

$$\int \sqrt{\tan(c+d x)}\,(a+i a \tan(c+d x))^m \, dx$$

Problem 334: Unable to integrate problem.

$$\int \frac{(a+i a \tan(c+d x))^m}{\sqrt{\tan(c+d x)}} \, dx$$

Optimal (type 6, 79 leaves, 4 steps):

$$\frac{1}{d} 2\,\text{AppellF1}\left[\frac{1}{2}, 1-m, 1, \frac{3}{2}, -i \tan(c+d x), i \tan(c+d x)\right] (1+i \tan(c+d x))^{-m} \sqrt{\tan(c+d x)}\, (a+i a \tan(c+d x))^m$$

Result (type 8, 28 leaves):

$$\int \frac{(a+i a \tan(c+d x))^m}{\sqrt{\tan(c+d x)}} \, dx$$

Problem 335: Unable to integrate problem.

$$\int \frac{(a+i a \tan(c+d x))^m}{\tan(c+d x)^{3/2}} \, dx$$

Optimal (type 6, 79 leaves, 4 steps):

$$-\frac{2\,\text{AppellF1}\left[-\frac{1}{2}, 1-m, 1, \frac{1}{2}, -i \tan(c+d x), i \tan(c+d x)\right] (1+i \tan(c+d x))^{-m} (a+i a \tan(c+d x))^m}{d \sqrt{\tan(c+d x)}}$$

Result (type 8, 28 leaves):

$$\int \frac{(a+i a \tan(c+d x))^m}{\tan(c+d x)^{3/2}} \, dx$$

Problem 378: Result unnecessarily involves imaginary or complex numbers.

$$\int \tan(e+f x)^5 \sqrt{1+\tan(e+f x)} \, dx$$

Optimal (type 3, 264 leaves, 11 steps):

$$-\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}+$$
$$\frac{52\,(1+\text{Tan}[e+f x])^{3/2}}{315 f}-\frac{26\,\text{Tan}[e+f x]\,(1+\text{Tan}[e+f x])^{3/2}}{105 f}-\frac{4\,\text{Tan}[e+f x]^2\,(1+\text{Tan}[e+f x])^{3/2}}{21 f}+\frac{2\,\text{Tan}[e+f x]^3\,(1+\text{Tan}[e+f x])^{3/2}}{9 f}$$

Result (type 3, 150 leaves) :

$$\left(\text{Cos}[e+f x]\,(1+\text{Tan}[e+f x])\left(-315\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]-315\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]+\right.\right.$$
$$\left.\left.2\sqrt{1+\text{Tan}[e+f x]}\ \left(445+35\,\text{Sec}[e+f x]^4-18\,\text{Tan}[e+f x]+\text{Sec}[e+f x]^2\,(-139+5\,\text{Tan}[e+f x])\right)\right)\right)\Big/\ (315 f\,(\text{Cos}[e+f x]+\text{Sin}[e+f x]))$$

Problem 379: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}\ dx$$

Optimal (type 3, 208 leaves, 9 steps) :

$$\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-$$
$$\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}-\frac{4\,(1+\text{Tan}[e+f x])^{3/2}}{15 f}+\frac{2\,\text{Tan}[e+f x]\,(1+\text{Tan}[e+f x])^{3/2}}{5 f}$$

Result (type 3, 100 leaves) :

$$\frac{1}{15 f}\left(15\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+15\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]+2\sqrt{1+\text{Tan}[e+f x]}\ \left(-20+3\,\text{Sec}[e+f x]^2+\text{Tan}[e+f x]\right)\right)$$

Problem 380: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]\sqrt{1+\text{Tan}[e+f x]}\ dx$$

Optimal (type 3, 166 leaves, 6 steps) :

$$-\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}$$

Result (type 3, 78 leaves) :

$$-\frac{\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]-2\sqrt{1+\text{Tan}[e+f x]}}{f}$$

- **Problem 381: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 165 leaves, 9 steps):

$$\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{2\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}$$

Result (type 4, 4921 leaves):

$$-\left(\left(2\times 2^{3/4}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]\text{Cot}[e+f x]\left(\text{EllipticPi}\left[-1-\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-\right.\right.\right.$$

$$(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\right)$$

$$\left.\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\ \sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\ \left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\ \sqrt{1+\text{Tan}[e+f x]}\right)\Big/$$

$$\left(f\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)\right.$$

$$\left(-\frac{1}{\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)}2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.\right.$$

$$-3-2\sqrt{2}\Big]-(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\Big[i\left(1+\sqrt{2}\right),$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}+$$

$$\frac{1}{\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)^{2}}2\times 2^{3/4}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\text{EllipticPi}\left[-1-\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - (1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - (1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] +$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right]\right)\left(\frac{3}{2}\text{Cos}\left[\frac{3}{2}(e+f x)\right] - \frac{1}{2}\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\left.\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\,\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}} -$$

$$\left(2^{3/4}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]\left(\text{EllipticPi}\left[-1-\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] -\right.\right.$$

$$(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - (1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\Bigg)\Big/$$

$$\left(\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)\right)+$$

$$\frac{1}{\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)}2^{3/4}\Bigg(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.$$

$$\left.-3-2\sqrt{2}\right]-(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\text{Sin}\left[\frac{1}{2}(e+f x)\right]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}-$$

$$\left(2^{3/4}\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\left(\text{EllipticPi}\left[-1-\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\right)\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}$$

$$\left.\left(\frac{\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}-\frac{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{(-1+\text{Sin}[e+f\,x])^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\right)\Bigg/$$

$$\left(\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f\,x]}\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}\,\left(\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Sin}\left[\frac{3}{2}\,(e+f\,x)\right]\right)\right)-$$

$$\left(2^{3/4}\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]\left(\text{EllipticPi}\left[-1-\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}$$

$$\left.\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right)-$$

$$\frac{1}{\sqrt{-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)}$$

$$2\times 2^{3/4}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\left(\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)+\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Bigg/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left((1+i)\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left((1-i)\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\Bigg)\Bigg)-$$

$$\frac{1}{\left(-\left(-2+\sqrt{2}\right)\text{Sec}[e+f x]\right)^{3/2}\left(\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\text{Sin}\left[\frac{3}{2}(e+f x)\right]\right)}2^{3/4}\left(-2+\sqrt{2}\right)\text{Cos}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(1-i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(1+i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}$$

$$\left.\left.\left.\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\text{Tan}[e+f x]\right)\right)\right)$$

- **Problem 382: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 221 leaves, 11 steps):

$$-\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\,\text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{9\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{4 f}-$$

$$\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\,\text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{4 f}-\frac{\text{Cot}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{2 f}$$

Result (type 4, 4049 leaves):

$$\frac{\left(\frac{1}{2}-\frac{1}{4}\text{Cot}[e+f x]-\frac{1}{2}\text{Csc}[e+f x]^2\right)\sqrt{1+\text{Tan}[e+f x]}}{f}-$$

$$\Bigg(\Bigg(\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-9\,\text{EllipticPi}\Big[-1-\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]+$$

$$(8-8\,i)\,\text{EllipticPi}\Big[-i\left(1+\sqrt{2}\right),\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]+(8+8\,i)\,\text{EllipticPi}\Big[i\left(1+\sqrt{2}\right),$$

$$\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-9\,\text{EllipticPi}\Big[1+\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]\Bigg)$$

$$\left(-\frac{5\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{8\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}-\frac{\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}-\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}\,\text{Sin}[2(e+f x)]}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1+\text{Tan}[e+f x]}\Bigg)\Bigg/$$

$$\left(2\times 2^{1/4}\,f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-\frac{1}{4\times 2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(8-8\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(8+8\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(8-8\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(8+8\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\,\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{4\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+$$

$$(8-8\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(8+8\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(8-8\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(8+8\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-9\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)-$$

$$\frac{1}{2\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)-$$

$$\left(9\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\right/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\;\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)-\left(9\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\;\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\Bigg(1-$$

$$\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\Bigg)\Bigg)+\left((4+4\,i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\;\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)+\Bigg((4-4\,i)\,2^{1/4}\Bigg(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-$$

$$\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\Bigg)\Bigg)\Big/\Bigg(\sqrt{2+\sqrt{2}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\;\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 383: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^5\,\sqrt{1+\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 273 leaves, 13 steps):

$$\frac{\sqrt{\frac{1}{2}\left(-1+\sqrt{2}\right)}\,\text{ArcTan}\left[\frac{4-3\sqrt{2}+\left(2-\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{-7+5\sqrt{2}}\,\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{139\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{64 f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\,\text{ArcTanh}\left[\frac{4+3\sqrt{2}+\left(2+\sqrt{2}\right)\text{Tan}[e+f x]}{2\sqrt{7+5\sqrt{2}}\,\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{11\,\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{64 f}+\frac{53\,\text{Cot}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{96 f}-\frac{\text{Cot}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}}{24 f}-\frac{\text{Cot}[e+f x]^4\sqrt{1+\text{Tan}[e+f x]}}{4 f}$$

Result (type 4, 4090 leaves):

$$\frac{1}{f}\left(-\frac{77}{96}+\frac{41}{192}\text{Cot}[e+f x]+\frac{101}{96}\text{Csc}[e+f x]^2-\frac{1}{24}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2-\frac{1}{4}\text{Csc}[e+f x]^4\right)\sqrt{1+\text{Tan}[e+f x]}+$$

$$\Bigg(\Bigg(11\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+$$

$$(128-128\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(128+128\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\left(\frac{75\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{128\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}\,\text{Sin}[2(e+f x)]}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1+\text{Tan}[e+f x]}\Bigg)\Bigg/$$

$$\left(32\times 2^{1/4}\,f\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}\,\left(\frac{1}{64\times 2^{1/4}\,\sqrt{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}}\right.\right.$$

$$\left(11\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(128-128\,\mathrm{i})\,\mathrm{EllipticPi}\left[-\mathrm{i}\left(1+\sqrt{2}\right),\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(128+128\,\mathrm{i})\,\mathrm{EllipticPi}\left[\mathrm{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\mathrm{EllipticPi}\left[1+\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\mathrm{Sec}[e+f\,x]}\,(\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x])\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{64\times 2^{1/4}\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}}$$

$$\left(11\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(128-128\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(128+128\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f\,x]^{3/2}$$

$$\text{Sin}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}-\frac{1}{64\times 2^{1/4}\left(\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}\right)^{3/2}}$$

$$\left(11\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(128-128\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(128+128\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]}\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\left(\frac{\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}-\frac{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{(-1+\text{Sin}[e+f\,x])^{2}}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{64\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(11\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$(128-128\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+(128+128\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-139\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{32\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(11\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\right/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)-$$

$$\left(139\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-$$

$$\left(139\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+$$

$$\left((64+64\,i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+$$

$$\left((64-64\,i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\ \sqrt{\frac{1+\tan\left[\frac{1}{2}(e+fx)\right]}{-1+\tan\left[\frac{1}{2}(e+fx)\right]}}\ \sqrt{1-\frac{\sqrt{2}\left(1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}}\right.$$

$$\left.\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}}\ \left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\tan\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)\right)$$

Problem 384: Result unnecessarily involves imaginary or complex numbers.

$$\int \tan[e+fx]^4\sqrt{1+\tan[e+fx]}\,dx$$

Optimal (type 3, 318 leaves, 14 steps):

$$-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\tan[e+fx]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\tan[e+fx]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\tan[e+fx]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\tan[e+fx]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}-\frac{\text{Log}\left[1+\sqrt{2}+\tan[e+fx]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\tan[e+fx]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}-$$

$$\frac{18\,(1+\tan[e+fx])^{3/2}}{35\,f}-\frac{8\tan[e+fx]\,(1+\tan[e+fx])^{3/2}}{35\,f}+\frac{2\tan[e+fx]^2\,(1+\tan[e+fx])^{3/2}}{7\,f}$$

Result (type 3, 118 leaves):

$$\frac{1}{35\,f}\left(-35\,i\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\tan[e+fx]}}{\sqrt{1-i}}\right]+35\,i\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\tan[e+fx]}}{\sqrt{1+i}}\right]+\right.$$

$$\left.2\sqrt{1+\tan[e+fx]}\ \left(\sec[e+fx]^2\,(1+5\tan[e+fx])-2\,(5+9\tan[e+fx])\right)\right)$$

Problem 385: Result unnecessarily involves imaginary or complex numbers.

$$\int \tan[e+fx]^2\sqrt{1+\tan[e+fx]}\,dx$$

Optimal (type 3, 266 leaves, 12 steps):

$$\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-$$

$$\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f\,x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f\,x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f\,x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f\,x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}+\frac{2\,(1+\text{Tan}[e+f\,x])^{3/2}}{3\,f}$$

Result (type 3, 86 leaves) :

$$\frac{3\,i\,\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1-i}}\right]-3\,i\,\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1+i}}\right]+2\,(1+\text{Tan}[e+f\,x])^{3/2}}{3\,f}$$

Problem 386: Result unnecessarily involves imaginary or complex numbers.

$$\int\sqrt{1+\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 247 leaves, 11 steps) :

$$-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f\,x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f\,x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f\,x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f\,x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}$$

Result (type 3, 67 leaves) :

$$-\frac{i\left(\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]-\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]\right)}{f}$$

- **Problem 387: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^2 \sqrt{1+\text{Tan}[e+f x]}\, dx$$

Optimal (type 3, 288 leaves, 16 steps):

$$\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-$$

$$\frac{\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}-\frac{\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{f}$$

Result (type 4, 3958 leaves):

$$-\frac{\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{f}-$$

$$\left(2^{3/4}\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$

$$(2+2 i)\ \text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(2-2 i)\ \text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\left(\frac{\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}-\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}\,\text{Sin}[2(e+f x)]}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1+\text{Tan}[e+f x]}\Bigg)\Bigg/$$

$$\left(f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\right)\left(-\frac{1}{2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-$$

$$(2+2\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(2-2\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,(\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}-\frac{1}{2^{1/4}\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-$$

$$(2+2\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(2-2\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\text{Sec}[e+f\,x]^{3/2}\,\text{Sin}[e+f\,x]\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{2^{1/4}\left(\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}\right)^{3/2}}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] + \text{EllipticPi}\left[-1-\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] -\right.$$

$$(2+2\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - (2-2\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] + \text{EllipticPi}\left[1+\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]} - \frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}} - \frac{1}{2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] + \text{EllipticPi}\left[-1-\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] -\right.$$

$$(2+2\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - (2-2\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)-$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}2^{3/4}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\Bigg(\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)-\left((1-i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.\left(1-\right.$$

$$\left.\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)-\left((1+i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 388: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^4\sqrt{1+\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 346 leaves, 19 steps):

$$-\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{\frac{1}{2}\left(1+\sqrt{2}\right)}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{7\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{8 f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{2\left(1+\sqrt{2}\right)}\ f}+$$

$$\frac{9\,\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{8 f}-\frac{\text{Cot}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{12 f}-\frac{\text{Cot}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}}{3 f}$$

Result (type 4, 4078 leaves) :

$$\frac{\left(\frac{1}{12}+\frac{35}{24}\text{Cot}[e+f x]-\frac{1}{12}\text{Csc}[e+f x]^2-\frac{1}{3}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2\right)\sqrt{1+\text{Tan}[e+f x]}}{f}+$$

$$\left(\left(9\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$

$$(16+16\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(16-16\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\left(\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{16\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}-\frac{\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}\,\text{Sin}[2(e+f x)]}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)$$

$$\left.\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1+\text{Tan}[e+f x]}\right)\Big/$$

$$\left(4\times 2^{1/4} f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(\frac{1}{8\times 2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$\left(9\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$(16+16\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(16-16\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{8\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(9\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$(16+16\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(16-16\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{8\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(9\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$(16+16\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(16-16\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{8\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\Bigg(9\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-$$

$$(16+16\,i)\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-(16-16\,i)\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+7\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{4\times 2^{1/4}\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}}\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}\,\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(\left(9\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)+$$

$$\left(7\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\right)+\left(7\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\left(1-\right.\right.$$

$$\left.\left.\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\right)-\left((8-8\,i)\,2^{1/4}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right.$$

$$\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\Bigg)-\left((8+8i)\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\right.\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Bigg/\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)\Bigg)\Bigg)$$

Problem 389: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+fx]^5\,(1+\text{Tan}[e+fx])^{3/2}\,dx$$

Optimal (type 3, 369 leaves, 19 steps):

$$\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+fx]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+fx]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+fx]-\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+fx]}\right]}{2\sqrt{1+\sqrt{2}}\,f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+fx]+\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+fx]}\right]}{2\sqrt{1+\sqrt{2}}\,f}+$$

$$\frac{2\sqrt{1+\text{Tan}[e+fx]}}{f}+\frac{2\,(1+\text{Tan}[e+fx])^{3/2}}{3f}+\frac{20\,(1+\text{Tan}[e+fx])^{5/2}}{231f}-\frac{50\,\text{Tan}[e+fx]\,(1+\text{Tan}[e+fx])^{5/2}}{231f}-$$
$$\frac{4\,\text{Tan}[e+fx]^2\,(1+\text{Tan}[e+fx])^{5/2}}{33f}+\frac{2\,\text{Tan}[e+fx]^3\,(1+\text{Tan}[e+fx])^{5/2}}{11f}$$

Result (type 3, 188 leaves):

$$\left(\text{Cos}[e+f x]\left((-1+i)\left(\sqrt{1-i}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+i\sqrt{1+i}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]\right)\text{Cos}[e+f x]\,(1+\text{Tan}[e+f x])^2+\frac{2}{231}\text{Sec}[e+f x]^3\,(1+\text{Tan}[e+f x])^{5/2}\left(28-110\,\text{Cos}[e+f x]^2+400\,\text{Cos}[e+f x]^4+125\,\text{Cos}[e+f x]^3\,\text{Sin}[e+f x]-37\,\text{Sin}[2\,(e+f x)]+21\,\text{Tan}[e+f x]\right)\right)\right)\Big/\left(f\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])^2\right)$$

Problem 390: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]^3\,(1+\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 315 leaves, 17 steps):

$$-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\,f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\,f}-\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}-\frac{2\,(1+\text{Tan}[e+f x])^{3/2}}{3 f}-\frac{4\,(1+\text{Tan}[e+f x])^{5/2}}{35 f}+\frac{2\,\text{Tan}[e+f x]\,(1+\text{Tan}[e+f x])^{5/2}}{7 f}$$

Result (type 3, 160 leaves):

$$\left(\text{Cos}[e+f x]\left((1+i)\left(-i\sqrt{1-i}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+\sqrt{1+i}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]\right)\text{Cos}[e+f x]\,(1+\text{Tan}[e+f x])^2+\frac{1}{105}\text{Sec}[e+f x]\,(1+\text{Tan}[e+f x])^{5/2}\left(48-340\,\text{Cos}[e+f x]^2-47\,\text{Sin}[2\,(e+f x)]+30\,\text{Tan}[e+f x]\right)\right)\right)\Big/\left(f\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])^2\right)$$

Problem 391: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]\,(1+\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 271 leaves, 14 steps):

$$\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-$$

$$\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\ f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\ f}+\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}+\frac{2\,(1+\text{Tan}[e+f x])^{3/2}}{3 f}$$

Result (type 3, 145 leaves) :

$$\left(\text{Cos}[e+f x]\left((-1+i)\left(\sqrt{1-i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+i\sqrt{1+i}\ \text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]\right)\text{Cos}[e+f x]\ (1+\text{Tan}[e+f x])^2+\frac{2}{3}\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])\ (1+\text{Tan}[e+f x])^{3/2}\ (4+\text{Tan}[e+f x])\right)\right)\Big/\left(f\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])^2\right)$$

- **Problem 392: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]\ (1+\text{Tan}[e+f x])^{3/2}\, dx$$

Optimal (type 3, 253 leaves, 16 steps) :

$$-\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{2\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\ f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{2\sqrt{1+\sqrt{2}}\ f}$$

Result (type 4, 3947 leaves) :

$$\Bigg(2\times 2^{3/4}\,\mathrm{Cos}[e+f\,x]$$

$$\Bigg(\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\,-3-2\sqrt{2}\Big]-\mathrm{EllipticPi}\Big[-1-\sqrt{2},\,\mathrm{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\,-3-2\sqrt{2}\Big]-$$

$$2\,i\,\mathrm{EllipticPi}\Big[-i\left(1+\sqrt{2}\right),\,\mathrm{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\,-3-2\sqrt{2}\Big]+2\,i$$

$$\mathrm{EllipticPi}\Big[i\left(1+\sqrt{2}\right),\,\mathrm{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\,-3-2\sqrt{2}\Big]-\mathrm{EllipticPi}\Big[1+\sqrt{2},\,\mathrm{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\,-3-2\sqrt{2}\Big]\Bigg)$$

$$\left(\frac{\mathrm{Csc}[e+f\,x]\sqrt{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}}{\sqrt{\mathrm{Sec}[e+f\,x]}}+\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}\right)$$

$$\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;(1+\mathrm{Tan}[e+f\,x])^{3/2}\Bigg)\Big/$$

$$\left(f\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}\,\left(\frac{1}{\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}\right.\right.$$

$$2^{3/4}\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$2\,\mathbb{i}\,\text{EllipticPi}\left[-\mathbb{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+2\,\mathbb{i}\,\text{EllipticPi}\left[\mathbb{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,(\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x])\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}$$

$$2^{3/4}\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)$$

$$\text{Sec}[e+f x]^{3/2}\,\text{Sin}[e+f x]\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$2^{3/4}\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-\text{EllipticPi}\left[-1-\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{\sqrt{\frac{\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}{-1+\operatorname{Sin}[e+f x]}}\sqrt{-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$2^{3/4}\left(\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\operatorname{EllipticPi}\left[-1-\sqrt{2},\operatorname{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$2\,i\operatorname{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\operatorname{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+2\,i\operatorname{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\operatorname{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\operatorname{EllipticPi}\left[1+\sqrt{2},\operatorname{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\operatorname{Sec}[e+f x]}$$

$$\sqrt{\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}\left(-\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{\sqrt{\frac{\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}{-1+\operatorname{Sin}[e+f x]}}}2\times 2^{3/4}\sqrt{\operatorname{Sec}[e+f x]}\sqrt{\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x]}\sqrt{-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\frac{\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}}{2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}-\right.$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\Bigg/\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)-$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\Bigg/\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)+$$

$$\left(i\,2^{1/4}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Bigg/\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)-$$

$$\left(i\,2^{1/4}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)\right)\Bigg)\Bigg)\Bigg)$$

Problem 393: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f\,x]^3\,(1+\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 307 leaves, 18 steps):

$$\frac{\sqrt{1+\sqrt{2}}\;\text{ArcTan}\Big[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\Big]}{f}-\frac{\sqrt{1+\sqrt{2}}\;\text{ArcTan}\Big[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\Big]}{f}+$$
$$\frac{5\,\text{ArcTanh}\Big[\sqrt{1+\text{Tan}[e+f\,x]}\Big]}{4\,f}+\frac{\text{Log}\Big[1+\sqrt{2}+\text{Tan}[e+f\,x]-\sqrt{2\left(1+\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}\Big]}{2\sqrt{1+\sqrt{2}}\;f}-$$
$$\frac{\text{Log}\Big[1+\sqrt{2}+\text{Tan}[e+f\,x]+\sqrt{2\left(1+\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}\Big]}{2\sqrt{1+\sqrt{2}}\;f}-\frac{5\,\text{Cot}[e+f\,x]\sqrt{1+\text{Tan}[e+f\,x]}}{4\,f}-\frac{\text{Cot}[e+f\,x]^2\sqrt{1+\text{Tan}[e+f\,x]}}{2\,f}$$

Result (type 4, 4055 leaves):

$$\frac{\text{Cos}[e+f\,x]\left(\frac{1}{2}-\frac{5}{4}\text{Cot}[e+f\,x]-\frac{1}{2}\text{Csc}[e+f\,x]^2\right)(1+\text{Tan}[e+f\,x])^{3/2}}{f\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}+$$
$$\Bigg(\text{Cos}[e+f\,x]\Bigg(-5\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]+5\,\text{EllipticPi}\Big[-1-\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]+$$
$$16\,i\,\text{EllipticPi}\Big[-i\left(1+\sqrt{2}\right),\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-16\,i\,\text{EllipticPi}\Big[i\left(1+\sqrt{2}\right),$$

$$\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\mathrm{EllipticPi}\left[1+\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\left(-\frac{5\,\mathrm{Csc}[e+f x]\sqrt{\mathrm{Sec}[e+f x]}}{8\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}-\frac{\mathrm{Csc}[e+f x]\sqrt{\mathrm{Sec}[e+f x]}\,\mathrm{Sin}[2(e+f x)]}{\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$(1+\mathrm{Tan}[e+f x])^{3/2}\Bigg)\Big/$$

$$\left(2\times 2^{1/4} f\,(\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x])\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}\right)\left(\frac{1}{4\times 2^{1/4}\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}}\right.$$

$$\Bigg(-5\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+$$

$$16\,\mathrm{i}\,\mathrm{EllipticPi}\left[-\mathrm{i}\left(1+\sqrt{2}\right),\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-16\,\mathrm{i}\,\mathrm{EllipticPi}\left[\mathrm{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(-5\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$16\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-16\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{4\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(-5\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$16\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-16\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\left(\frac{\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}-\frac{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{(-1+\text{Sin}[e+f\,x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}}$$

$$\left(-5\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$16\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-16\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{2\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(-\left(5\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(5\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(5\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left(1-\frac{\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)-\Bigg(8\,i\,2^{1/4}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)+\Bigg(8\,i\,2^{1/4}\left(\frac{\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\left(1+\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 394: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f\,x]^5\,(1+\mathrm{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 361 leaves, 20 steps):

$$-\frac{\sqrt{1+\sqrt{2}}\;\mathrm{ArcTan}\left[\frac{\sqrt{2\,\left(1+\sqrt{2}\right)}-2\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{\sqrt{2\,\left(-1+\sqrt{2}\right)}}\right]}{f}+\frac{\sqrt{1+\sqrt{2}}\;\mathrm{ArcTan}\left[\frac{\sqrt{2\,\left(1+\sqrt{2}\right)}+2\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{\sqrt{2\,\left(-1+\sqrt{2}\right)}}\right]}{f}-\frac{83\,\mathrm{ArcTanh}\left[\sqrt{1+\mathrm{Tan}[e+f\,x]}\right]}{64\,f}-$$

$$\frac{\mathrm{Log}\left[1+\sqrt{2}+\mathrm{Tan}[e+f\,x]-\sqrt{2\,\left(1+\sqrt{2}\right)}\,\sqrt{1+\mathrm{Tan}[e+f\,x]}\right]}{2\,\sqrt{1+\sqrt{2}}\,f}+\frac{\mathrm{Log}\left[1+\sqrt{2}+\mathrm{Tan}[e+f\,x]+\sqrt{2\,\left(1+\sqrt{2}\right)}\,\sqrt{1+\mathrm{Tan}[e+f\,x]}\right]}{2\,\sqrt{1+\sqrt{2}}\,f}+$$

$$\frac{83\,\mathrm{Cot}[e+f\,x]\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{64\,f}+\frac{15\,\mathrm{Cot}[e+f\,x]^2\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{32\,f}-\frac{3\,\mathrm{Cot}[e+f\,x]^3\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{8\,f}-\frac{\mathrm{Cot}[e+f\,x]^4\,\sqrt{1+\mathrm{Tan}[e+f\,x]}}{4\,f}$$

Result (type 4, 4084 leaves) :

$$\left(\text{Cos}[e+f x] \left(-\frac{23}{32}+\frac{107}{64}\text{Cot}[e+f x]+\frac{31}{32}\text{Csc}[e+f x]^2-\frac{3}{8}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2-\frac{1}{4}\text{Csc}[e+f x]^4\right)(1+\text{Tan}[e+f x])^{3/2}\right)\Big/$$
$$(f\,(\text{Cos}[e+f x]+\text{Sin}[e+f x]))+$$

$$\left(\text{Cos}[e+f x]\left(83\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.\right.\right.$$

$$\left.-3-2\sqrt{2}\right]-256\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+256\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\left(\frac{83\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{128\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}\;\text{Sin}[2(e+f x)]}{\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left.(1+\text{Tan}[e+f x])^{3/2}\right)\Big/$$

$$\left(32 \times 2^{1/4} f (\text{Cos}[e + f x] + \text{Sin}[e + f x]) \sqrt{\frac{\text{Cos}[e + f x] + \text{Sin}[e + f x]}{-1 + \text{Sin}[e + f x]}} \left(\frac{1}{64 \times 2^{1/4} \sqrt{\text{Cos}[e + f x] + \text{Sin}[e + f x]} \sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$\left(83 \,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] - 83 \,\text{EllipticPi}\left[-1 - \sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] -\right.$$

$$256 \,\mathrm{i} \,\text{EllipticPi}\left[-\mathrm{i} \left(1 + \sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] + 256 \,\mathrm{i} \,\text{EllipticPi}\left[\mathrm{i} \left(1 + \sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] - 83 \,\text{EllipticPi}\left[1 + \sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e + f x]} \,(\text{Cos}[e + f x] - \text{Sin}[e + f x]) \sqrt{-\frac{1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]}{\left(-2 + \sqrt{2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]\right)}} + \frac{1}{64 \times 2^{1/4} \sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(83 \,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] - 83 \,\text{EllipticPi}\left[-1 - \sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]}}}{\sqrt{2 + \sqrt{2}}}\right], -3 - 2 \sqrt{2}\right] -\right.$$

$$256\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+256\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\,\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{64\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\Bigg(83\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-$$

$$256\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+256\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{64\times 2^{1/4}\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(83\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$256\,\mathrm{i}\,\mathrm{EllipticPi}\left[-\mathrm{i}\left(1+\sqrt{2}\right),\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+256\,\mathrm{i}\,\mathrm{EllipticPi}\left[\mathrm{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-83\,\mathrm{EllipticPi}\left[1+\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\mathrm{Sec}[e+f x]}$$

$$\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\left(-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{32\times 2^{1/4}\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}}\sqrt{\mathrm{Sec}[e+f x]}\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(83\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\right/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)-$$

$$\left(83\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(83\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(128\,i\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(128\,i\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right)$$

Problem 395: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]^4 (1+\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 227 leaves, 10 steps):

$$-\frac{\sqrt{-1+\sqrt{2}}\ \text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+$$

$$\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}-\frac{22(1+\text{Tan}[e+f x])^{5/2}}{63 f}-\frac{8\,\text{Tan}[e+f x](1+\text{Tan}[e+f x])^{5/2}}{63 f}+\frac{2\,\text{Tan}[e+f x]^2(1+\text{Tan}[e+f x])^{5/2}}{9 f}$$

Result (type 3, 155 leaves):

$$\left(2\,\text{Cos}[e+f x]^2\left(-63\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}\right)(1+\text{Tan}[e+f x])^2+\right.\right.$$

$$\left.\left.(1+\text{Tan}[e+f x])^{5/2}\left(71+7\,\text{Sec}[e+f x]^4-36\,\text{Tan}[e+f x]+2\,\text{Sec}[e+f x]^2(-13+5\,\text{Tan}[e+f x])\right)\right)\right)\Big/\left(63 f\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])^2\right)$$

Problem 396: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[e+f x]^2 (1+\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 173 leaves, 8 steps):

$$\frac{\sqrt{-1+\sqrt{2}}\ \text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}+\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}+\frac{2(1+\text{Tan}[e+f x])^{5/2}}{5 f}$$

Result (type 3, 133 leaves):

$$\left(2\,\text{Cos}[e+f\,x]^2\left(5\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}\right)(1+\text{Tan}[e+f\,x])^2+(1+\text{Tan}[e+f\,x])^{5/2}\left(-5+\text{Sec}[e+f\,x]^2+2\,\text{Tan}[e+f\,x]\right)\right)\right)\Big/\left(5\,f\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])^2\right)$$

Problem 397: Result unnecessarily involves imaginary or complex numbers.

$$\int(1+\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 156 leaves, 7 steps):

$$-\frac{\sqrt{-1+\sqrt{2}}\,\text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f\,x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\,\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{f}-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f\,x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\,\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{f}+\frac{2\sqrt{1+\text{Tan}[e+f\,x]}}{f}$$

Result (type 3, 130 leaves):

$$\left(2\,\text{Cos}[e+f\,x]\left((\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])\,(1+\text{Tan}[e+f\,x])^{3/2}-\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f\,x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}\right)\text{Cos}[e+f\,x]\,(1+\text{Tan}[e+f\,x])^2\right)\right)\Big/\left(f\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])^2\right)$$

Problem 398: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\text{Cot}[e+f\,x]^2\,(1+\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 178 leaves, 11 steps):

$$\frac{\sqrt{-1+\sqrt{2}}\ \text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{3\ \text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{f}+$$

$$\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{f}-\frac{\text{Cot}[e+f x]\ \sqrt{1+\text{Tan}[e+f x]}}{f}$$

Result (type 4, 3987 leaves) :

$$-\frac{\text{Cos}[e+f x]\ \text{Cot}[e+f x]\ (1+\text{Tan}[e+f x])^{3/2}}{f\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])}-$$

$$\left(2^{3/4}\ \text{Cos}[e+f x]\ \left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+3\ \text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.\right.\right.$$

$$\left.-3-2\sqrt{2}\right]-4\ \text{EllipticPi}\left[-\mathrm{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-4\ \text{EllipticPi}\left[\mathrm{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+3\ \text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\left.\left(\frac{\text{Csc}[e+f x]\ \sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Cos}[2(e+f x)]\ \text{Csc}[e+f x]\ \sqrt{\text{Sec}[e+f x]}}{\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\ (1+\text{Tan}[e+f x])^{3/2}\right)\Big/$$

$$\left(f\,(\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x])\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}\right.\left(-\frac{1}{2^{1/4}\,\sqrt{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}}\right.$$

$$\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]+3\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\,\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]-\right.$$

$$4\,\mathrm{EllipticPi}\left[-i\,\left(1+\sqrt{2}\right),\,\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]-4\,\mathrm{EllipticPi}\left[i\,\left(1+\sqrt{2}\right),\right.$$

$$\left.\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]+3\,\mathrm{EllipticPi}\left[1+\sqrt{2},\,\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]\Bigg)$$

$$\sqrt{\mathrm{Sec}[e+f\,x]}\,\,(\mathrm{Cos}[e+f\,x]-\mathrm{Sin}[e+f\,x])\,\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}-\frac{1}{2^{1/4}\,\sqrt{\frac{\mathrm{Cos}[e+f\,x]+\mathrm{Sin}[e+f\,x]}{-1+\mathrm{Sin}[e+f\,x]}}}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]+3\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\,\mathrm{ArcSin}\left[\frac{2^{1/4}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\,\sqrt{2}\right]-\right.$$

$$4\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-4\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+3\,\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)$$

$$\text{Sec}[e+f\,x]^{3/2}\,\text{Sin}[e+f\,x]\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{2^{1/4}\left(\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}\right)^{3/2}}$$

$$\Bigg(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+3\,\text{EllipticPi}\left[-1-\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-$$

$$4\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-4\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+3\,\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\,\left(\frac{\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}-\frac{\text{Cos}[e+f\,x]\,(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])}{(-1+\text{Sin}[e+f\,x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+3\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$4\,\text{EllipticPi}\left[-\mathbb{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-4\,\text{EllipticPi}\left[\mathbb{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+3\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)-$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}2^{3/4}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.+$$

$$\left.\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(2\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(2\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\tan\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\tan\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\tan\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\tan\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right)$$

■ **Problem 399: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \cot[e+f x]^4\,(1+\tan[e+f x])^{3/2}\,dx$$

Optimal (type 3, 238 leaves, 13 steps):

$$-\frac{\sqrt{-1+\sqrt{2}}\,\text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\tan[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\tan[e+f x]}}\right]}{f}+\frac{25\,\text{ArcTanh}\left[\sqrt{1+\tan[e+f x]}\right]}{8 f}-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\tan[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\tan[e+f x]}}\right]}{f}+$$

$$\frac{7\cot[e+f x]\sqrt{1+\tan[e+f x]}}{8 f}-\frac{7\cot[e+f x]^2\sqrt{1+\tan[e+f x]}}{12 f}-\frac{\cot[e+f x]^3\sqrt{1+\tan[e+f x]}}{3 f}$$

Result (type 4, 4049 leaves):

$$\frac{\cos[e+f x]\left(\frac{7}{12}+\frac{29}{24}\cot[e+f x]-\frac{7}{12}\csc[e+f x]^2-\frac{1}{3}\cot[e+f x]\csc[e+f x]^2\right)(1+\tan[e+f x])^{3/2}}{f\,(\cos[e+f x]+\sin[e+f x])}+$$

$$\left(\cos[e+f x]\left(7\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\tan\left[\frac{1}{2}(e+f x)\right]}{-1+\tan\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\tan\left[\frac{1}{2}(e+f x)\right]}{-1+\tan\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$

$$32\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\tan\left[\frac{1}{2}(e+f x)\right]}{-1+\tan\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-32\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\mathrm{EllipticPi}\left[1+\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\left(-\frac{9\,\mathrm{Csc}[e+f x]\sqrt{\mathrm{Sec}[e+f x]}}{16\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}-\frac{\mathrm{Cos}[2(e+f x)]\,\mathrm{Csc}[e+f x]\sqrt{\mathrm{Sec}[e+f x]}}{\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left.(1+\mathrm{Tan}[e+f x])^{3/2}\right)\Big/$$

$$\left(4\times 2^{1/4} f\,(\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x])\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}\right)\left(\frac{1}{8\times 2^{1/4}\sqrt{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}\sqrt{\frac{\mathrm{Cos}[e+f x]+\mathrm{Sin}[e+f x]}{-1+\mathrm{Sin}[e+f x]}}}\right.$$

$$\left(7\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\mathrm{EllipticPi}\left[-1-\sqrt{2},\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$32\,\mathrm{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\mathrm{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-32\,\mathrm{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{8\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\Bigg(7\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-$$

$$32\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-32\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\,\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{8\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(7\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$32\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-32\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{8\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(7\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$32\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-32\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+25\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\Bigg(\Bigg(7\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(25\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\Bigg)+\left(25\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(1-\frac{\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)-\left(16\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)-\left(16\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\left(1+\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 400: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[e+f\,x]^5}{\sqrt{1+\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 241 leaves, 10 steps):

$$-\frac{\sqrt{-1+\sqrt{2}}\;\text{ArcTan}\left[\frac{3-2\,\sqrt{2}+\left(1-\sqrt{2}\right)\,\text{Tan}[e+f\,x]}{\sqrt{2\,\left(-7+5\,\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{2\,f}-\frac{\sqrt{1+\sqrt{2}}\;\text{ArcTanh}\left[\frac{3+2\,\sqrt{2}+\left(1+\sqrt{2}\right)\,\text{Tan}[e+f\,x]}{\sqrt{2\,\left(7+5\,\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{2\,f}+\frac{44\,\sqrt{1+\text{Tan}[e+f\,x]}}{105\,f}-$$

$$\frac{22\,\text{Tan}[e+f\,x]\,\sqrt{1+\text{Tan}[e+f\,x]}}{105\,f}-\frac{12\,\text{Tan}[e+f\,x]^2\,\sqrt{1+\text{Tan}[e+f\,x]}}{35\,f}+\frac{2\,\text{Tan}[e+f\,x]^3\,\sqrt{1+\text{Tan}[e+f\,x]}}{7\,f}$$

Result (type 3, 110 leaves):

$$-\frac{1}{f}\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}-\frac{2}{105}\sqrt{1+\text{Tan}[e+f x]}\left(40-26\,\text{Tan}[e+f x]+3\,\text{Sec}[e+f x]^2(-6+5\,\text{Tan}[e+f x])\right)\right)$$

Problem 401: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tan}[e+f x]^3}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 187 leaves, 8 steps):

$$\frac{\sqrt{-1+\sqrt{2}}\,\text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}+\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}-\frac{4\sqrt{1+\text{Tan}[e+f x]}}{3 f}+\frac{2\,\text{Tan}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{3 f}$$

Result (type 3, 87 leaves):

$$\frac{\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}+\frac{2}{3}(-2+\text{Tan}[e+f x])\sqrt{1+\text{Tan}[e+f x]}}{f}$$

Problem 402: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tan}[e+f x]}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 143 leaves, 5 steps):

$$-\frac{\sqrt{-1+\sqrt{2}}\,\text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}$$

Result (type 3, 64 leaves):

$$-\frac{\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}}{f}$$

- **Problem 403: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[e+f\,x]}{\sqrt{1+\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 161 leaves, 9 steps):

$$\frac{\sqrt{-1+\sqrt{2}}\;\text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f\,x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{2\,f}-\frac{2\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f\,x]}\right]}{f}+\frac{\sqrt{1+\sqrt{2}}\;\text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f\,x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\;\sqrt{1+\text{Tan}[e+f\,x]}}\right]}{2\,f}$$

Result (type 4, 3400 leaves):

$$-\left(\left(2\times 2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.\right.\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\right)\text{Sec}[e+f\,x]\,\left(\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]\right)$$

$$\left.\left(\frac{\text{Csc}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]}}{2\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}+\frac{\text{Cos}[2\,(e+f\,x)]\,\text{Csc}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]}}{2\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right)\bigg/$$

$$\left(f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(-\frac{1}{\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.$$

$$-3-2\sqrt{2}\Big]-\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\Big[1+\sqrt{2},$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] + \text{EllipticPi}\left[1+\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right]\right)$$

$$\text{Sec}[e+f x]^{3/2}\,\text{Sin}[e+f x]\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}} +$$

$$\frac{1}{\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}} 2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - \text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\right.\right.$$

$$\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] - \text{EllipticPi}\left[i\left(1+\sqrt{2}\right), \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right] +$$

$$\left.\text{EllipticPi}\left[1+\sqrt{2}, \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right], -3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}$$

$$\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]} - \frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}} -$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}2^{3/4}\left(\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$\text{EllipticPi}\left[-\mathbb{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\text{EllipticPi}\left[\mathbb{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)-$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}2\times 2^{3/4}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Bigg/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)-\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\Bigg/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)-\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\Bigg/$$

$$\Bigg(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)\;\sqrt{1+\text{Tan}[e+f\,x]}\;\Bigg)\Bigg)$$

- **Problem 404: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^3}{\sqrt{1+\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 215 leaves, 12 steps) :

$$-\frac{\sqrt{-1+\sqrt{2}}\ \text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}+\frac{5\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{4 f}-$$

$$\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}+\frac{3\,\text{Cot}[e+f x]\ \sqrt{1+\text{Tan}[e+f x]}}{4 f}-\frac{\text{Cot}[e+f x]^2\ \sqrt{1+\text{Tan}[e+f x]}}{2 f}$$

Result (type 4, 4029 leaves) :

$$\frac{\left(\frac{1}{2}+\frac{3}{4}\text{Cot}[e+f x]-\frac{1}{2}\text{Csc}[e+f x]^2\right)\text{Sec}[e+f x]\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])}{f\sqrt{1+\text{Tan}[e+f x]}}+$$

$$\left(\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$

$$8\,\text{EllipticPi}\left[-\text{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-8\,\text{EllipticPi}\left[\text{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.$$

$$\left.\left.-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])$$

$$\left.\left(-\frac{\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{8\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}-\frac{\text{Cos}[2(e+f x)]\ \text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)\Bigg/$$

$$\left(2\times 2^{1/4} f \sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(\frac{1}{4\times 2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$8\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-8\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,(\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$8\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-8\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)\ \text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\ \sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\ \sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{4\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\Bigg(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-$$

$$8\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]-8\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\ \text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\ -3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\ \sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\ \left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$8\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-8\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+5\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{2\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(5\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(5\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(4\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(4\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left.\left.\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right|\left.\sqrt{1+\text{Tan}[e+f x]}\right)$$

Problem 405: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f x]^5}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 269 leaves, 14 steps):

$$\frac{\sqrt{-1+\sqrt{2}}\ \text{ArcTan}\left[\frac{3-2\sqrt{2}+\left(1-\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(-7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}-\frac{115\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{64 f}+\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTanh}\left[\frac{3+2\sqrt{2}+\left(1+\sqrt{2}\right)\text{Tan}[e+f x]}{\sqrt{2\left(7+5\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}}\right]}{2 f}-$$
$$\frac{13\,\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{64 f}+\frac{13\,\text{Cot}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{96 f}+\frac{7\,\text{Cot}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}}{24 f}-\frac{\text{Cot}[e+f x]^4\sqrt{1+\text{Tan}[e+f x]}}{4 f}$$

Result (type 4, 4059 leaves):

$$\frac{1}{f\sqrt{1+\text{Tan}[e+f x]}}$$
$$\left(\left(-\frac{37}{96}-\frac{95}{192}\text{Cot}[e+f x]+\frac{61}{96}\text{Csc}[e+f x]^2+\frac{7}{24}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2-\frac{1}{4}\text{Csc}[e+f x]^4\right)\text{Sec}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])-\right.$$
$$\left(\left(13\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$
$$128\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-128\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],$$

$$-3-2\sqrt{2}\Big] + 115\,\text{EllipticPi}\Big[1+\sqrt{2},\ \text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big]\Bigg)\ \text{Sec}[e+f x]\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])$$

$$\left(\frac{51\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{128\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}+\frac{\text{Cos}[2(e+f x)]\,\text{Csc}[e+f x]\sqrt{\text{Sec}[e+f x]}}{2\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\Bigg)\Bigg/$$

$$\left(32\times 2^{1/4} f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\right)\Bigg(-\frac{1}{64\times 2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\Bigg(13\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big] + 115\,\text{EllipticPi}\Big[-1-\sqrt{2},\ \text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big] -$$

$$128\,\text{EllipticPi}\Big[-i\left(1+\sqrt{2}\right),\ \text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big] - 128\,\text{EllipticPi}\Big[i\left(1+\sqrt{2}\right),$$

$$\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big] + 115\,\text{EllipticPi}\Big[1+\sqrt{2},\ \text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\Big],\ -3-2\sqrt{2}\Big]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\ (\text{Cos}[e+f x]-\text{Sin}[e+f x])\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{64\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}$$

$$\left(13\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$128\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-128\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{64\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(13\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$128\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-128\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{64\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\Bigg(13\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[-1-\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-$$

$$128\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-128\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+115\,\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)-$$

$$\frac{1}{32\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(13\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(115\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(115\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(64\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\ \sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\ \sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(64\times 2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{2+\sqrt{2}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\ \sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\ \sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left.\left.\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\sqrt{1+\text{Tan}[e+f x]}\right)$$

- **Problem 406: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\text{Tan}[e+f x]^4}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 311 leaves, 14 steps):

$$-\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}+\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}-$$

$$\frac{14\sqrt{1+\text{Tan}[e+f x]}}{15 f}-\frac{8\,\text{Tan}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{15 f}+\frac{2\,\text{Tan}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{5 f}$$

Result (type 3, 100 leaves):

$$\frac{(1-i)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{2 f}+\frac{(1+i)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{2 f}+\frac{2\,(1+\text{Tan}[e+f x])^{3/2}\,(-7+3\,\text{Tan}[e+f x])}{15 f}$$

- **Problem 407: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[e+f x]^2}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 257 leaves, 12 steps):

$$\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\,\sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\,f}-\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\,\sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\,f}+\frac{2\sqrt{1+\text{Tan}[e+f x]}}{f}$$

Result (type 3, 80 leaves):

$$-\frac{(1-i)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]+(1+i)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]-4\sqrt{1+\text{Tan}[e+f x]}}{2 f}$$

- **Problem 408: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{1}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 240 leaves, 11 steps):

$$-\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}+\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}$$

Result (type 3, 67 leaves) :

$$-\frac{i\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1-i}}\right]}{\sqrt{1-i}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{1+i}}\right]}{\sqrt{1+i}}\right)}{f}$$

Problem 409: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[e+f x]^2}{\sqrt{1+\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 280 leaves, 19 steps) :

$$\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}-\frac{\sqrt{1+\sqrt{2}}\ \text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}+$$

$$\frac{\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\ \sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\ f}-\frac{\text{Cot}[e+f x]\ \sqrt{1+\text{Tan}[e+f x]}}{f}$$

Result (type 4, 3975 leaves) :

$$-\frac{\text{Csc}[e+f x]\ (\text{Cos}[e+f x]+\text{Sin}[e+f x])}{f\sqrt{1+\text{Tan}[e+f x]}}+$$

$$\left(2^{3/4}\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.\right.$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.$$

$$\left.\left.-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])$$

$$\left.\left(-\frac{\text{Csc}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}}{2\sqrt{\text{Sec}[e+f x]}}-\frac{1}{2}\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)\Bigg/$$

$$\left(f\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\left(\frac{1}{2^{1/4}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\right.\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,\left(\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}+\frac{1}{2^{1/4}\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+\right.$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]-2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\,\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\,-3-2\sqrt{2}\right]\right)$$

$$\text{Sec}[e+f x]^{3/2}\,\text{Sin}[e+f x]\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$2\,\mathbb{i}\,\text{EllipticPi}\left[-\mathbb{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-2\,\mathbb{i}\,\text{EllipticPi}\left[\mathbb{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}+\frac{1}{2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\right.$$

$$2\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-2\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)+$$

$$\frac{1}{\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\,2^{3/4}\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(-\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Bigg/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Bigg/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left(1-\frac{\sqrt{2}\,\left(-1-\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)+\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\Big/$$

$$\Bigg(2^{3/4}\,\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)-\left(i\,2^{1/4}\,\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\left(1-\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)+\left(i\,2^{1/4}\,\left(\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(\sqrt{2+\sqrt{2}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}\,\sqrt{1-\frac{\sqrt{2}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\,\sqrt{1-\frac{\sqrt{2}\,\left(-3-2\,\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}$$

$$\left(1+\frac{i\,\sqrt{2}\,\left(1+\sqrt{2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}\right)\Bigg)\Bigg)\Bigg)\,\sqrt{1+\text{Tan}[e+f\,x]}\Bigg)$$

- **Problem 410: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^4}{\sqrt{1+\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 339 leaves, 19 steps) :

$$-\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}-2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}+\frac{\sqrt{1+\sqrt{2}}\,\text{ArcTan}\left[\frac{\sqrt{2\left(1+\sqrt{2}\right)}+2\sqrt{1+\text{Tan}[e+f x]}}{\sqrt{2\left(-1+\sqrt{2}\right)}}\right]}{2 f}-\frac{3\,\text{ArcTanh}\left[\sqrt{1+\text{Tan}[e+f x]}\right]}{8 f}-$$

$$\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]-\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\,f}+\frac{\text{Log}\left[1+\sqrt{2}+\text{Tan}[e+f x]+\sqrt{2\left(1+\sqrt{2}\right)}\sqrt{1+\text{Tan}[e+f x]}\right]}{4\sqrt{1+\sqrt{2}}\,f}+$$

$$\frac{3\,\text{Cot}[e+f x]\sqrt{1+\text{Tan}[e+f x]}}{8 f}+\frac{5\,\text{Cot}[e+f x]^2\sqrt{1+\text{Tan}[e+f x]}}{12 f}-\frac{\text{Cot}[e+f x]^3\sqrt{1+\text{Tan}[e+f x]}}{3 f}$$

Result (type 4, 4071 leaves) :

$$\frac{1}{f\sqrt{1+\text{Tan}[e+f x]}}\left(-\frac{5}{12}+\frac{17}{24}\text{Cot}[e+f x]+\frac{5}{12}\text{Csc}[e+f x]^2-\frac{1}{3}\text{Cot}[e+f x]\,\text{Csc}[e+f x]^2\right)\text{Sec}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])+$$

$$\left(\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-3\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.\right.$$

$$16\,i\,\text{EllipticPi}\left[-i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+16\,i\,\text{EllipticPi}\left[i\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],\right.$$

$$\left.\left.-3-2\sqrt{2}\right]-3\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])$$

$$\left(\frac{3\,\text{Csc}[e+f\,x]\,\sqrt{\text{Sec}[e+f\,x]}}{16\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}+\frac{\text{Csc}[e+f\,x]\,\sqrt{\text{Sec}[e+f\,x]}\,\text{Sin}[2\,(e+f\,x)]}{2\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}}\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\Bigg/$$

$$\left(4\times 2^{1/4}\,f\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}\left(\frac{1}{8\times 2^{1/4}\,\sqrt{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}\right.\right.$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\,\sqrt{2}\right]-3\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\,\sqrt{2}\right]-\right.$$

$$16\,\mathbb{i}\,\text{EllipticPi}\left[-\mathbb{i}\,\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\,\sqrt{2}\right]+16\,\mathbb{i}\,\text{EllipticPi}\left[\mathbb{i}\,\left(1+\sqrt{2}\right),\right.$$

$$\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\,\sqrt{2}\right]-3\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\,\sqrt{2}\right]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]}\,\left(\text{Cos}[e+f\,x]-\text{Sin}[e+f\,x]\right)\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]}{\left(-2+\sqrt{2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}+\frac{1}{8\times 2^{1/4}\,\sqrt{\frac{\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x]}{-1+\text{Sin}[e+f\,x]}}}$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-3\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$16\,\text{i}\,\text{EllipticPi}\left[-\text{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+16\,\text{i}\,\text{EllipticPi}\left[\text{i}\left(1+\sqrt{2}\right),\right.$$

$$\left.\left.\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-3\,\text{EllipticPi}\left[1+\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]\right)\text{Sec}[e+f x]^{3/2}$$

$$\text{Sin}[e+f x]\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}-\frac{1}{8\times 2^{1/4}\left(\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}\right)^{3/2}}$$

$$\left(3\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-3\,\text{EllipticPi}\left[-1-\sqrt{2},\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]-\right.$$

$$16\,\text{i}\,\text{EllipticPi}\left[-\text{i}\left(1+\sqrt{2}\right),\text{ArcSin}\left[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}}{\sqrt{2+\sqrt{2}}}\right],-3-2\sqrt{2}\right]+16\,\text{i}\,\text{EllipticPi}\left[\text{i}\left(1+\sqrt{2}\right),\right.$$

$$\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-3\,\text{EllipticPi}\Big[1+\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]\Bigg)$$

$$\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(\frac{\text{Cos}[e+f x]-\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}-\frac{\text{Cos}[e+f x]\,(\text{Cos}[e+f x]+\text{Sin}[e+f x])}{(-1+\text{Sin}[e+f x])^2}\right)$$

$$\sqrt{-\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}[\frac{1}{2}(e+f x)]\right)}}+\frac{1}{8\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}\sqrt{-\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}[\frac{1}{2}(e+f x)]\right)}}}$$

$$\Bigg(3\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-3\,\text{EllipticPi}\Big[-1-\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-$$

$$16\,i\,\text{EllipticPi}\Big[-i\left(1+\sqrt{2}\right),\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]+16\,i\,\text{EllipticPi}\Big[i\left(1+\sqrt{2}\right),$$

$$\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]-3\,\text{EllipticPi}\Big[1+\sqrt{2},\text{ArcSin}\Big[\frac{2^{1/4}\sqrt{\frac{1+\text{Tan}[\frac{1}{2}(e+f x)]}{-1+\text{Tan}[\frac{1}{2}(e+f x)]}}}{\sqrt{2+\sqrt{2}}}\Big],-3-2\sqrt{2}\Big]\Bigg)\sqrt{\text{Sec}[e+f x]}$$

$$\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\left(-\frac{\text{Sec}[\frac{1}{2}(e+f x)]^2}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}[\frac{1}{2}(e+f x)]\right)}+\frac{\text{Sec}[\frac{1}{2}(e+f x)]^2\left(1+\text{Tan}[\frac{1}{2}(e+f x)]\right)}{2\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}[\frac{1}{2}(e+f x)]\right)^2}\right)+$$

$$\frac{1}{4\times 2^{1/4}\sqrt{\frac{\text{Cos}[e+f x]+\text{Sin}[e+f x]}{-1+\text{Sin}[e+f x]}}}\sqrt{\text{Sec}[e+f x]}\,\sqrt{\text{Cos}[e+f x]+\text{Sin}[e+f x]}\,\sqrt{-\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left(\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)-$$

$$\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(-1-\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(3\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2^{3/4}\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1-\frac{\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)+\left(8\,i\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left(1-\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)-\left(8\,i\,2^{1/4}\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2+\sqrt{2}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]}}\sqrt{1-\frac{\sqrt{2}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\sqrt{2}\left(-3-2\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right.$$

$$\left.\left(1+\frac{i\sqrt{2}\left(1+\sqrt{2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(2+\sqrt{2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right)\right)\right)\sqrt{1+\text{Tan}[e+f x]}\right)$$

Problem 411: Unable to integrate problem.

$$\int (d\,\text{Tan}[e+f x])^n\,(a+a\,\text{Tan}[e+f x])^m\,dx$$

Optimal (type 6, 161 leaves, 7 steps):

$$\frac{1}{2\,d\,f\,(1+n)}\text{AppellF1}[1+n,\,-m,\,1,\,2+n,\,-\text{Tan}[e+f x],\,-i\,\text{Tan}[e+f x]]\,(d\,\text{Tan}[e+f x])^{1+n}\,(1+\text{Tan}[e+f x])^{-m}\,(a+a\,\text{Tan}[e+f x])^m+$$
$$\frac{1}{2\,d\,f\,(1+n)}\text{AppellF1}[1+n,\,-m,\,1,\,2+n,\,-\text{Tan}[e+f x],\,i\,\text{Tan}[e+f x]]\,(d\,\text{Tan}[e+f x])^{1+n}\,(1+\text{Tan}[e+f x])^{-m}\,(a+a\,\text{Tan}[e+f x])^m$$

Result (type 8, 25 leaves):

$$\int (d\,\text{Tan}[e+f x])^n\,(a+a\,\text{Tan}[e+f x])^m\,dx$$

Problem 427: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]\,(a+b\,\text{Tan}[c+d x])^2\,dx$$

Optimal (type 3, 58 leaves, 3 steps):

$$-2\,a\,b\,x-\frac{\left(a^2-b^2\right)\text{Log}[\text{Cos}[c+d x]]}{d}+\frac{a\,b\,\text{Tan}[c+d x]}{d}+\frac{(a+b\,\text{Tan}[c+d x])^2}{2\,d}$$

Result (type 3, 125 leaves):

$$\left(\left(b^2-2\,a\,b\,c-2\,a\,b\,d\,x-a^2\,\text{Log}[\text{Cos}[c+d x]]+b^2\,\text{Log}[\text{Cos}[c+d x]]-\text{Cos}[2\,(c+d x)]\left(2\,a\,b\,(c+d x)+\left(a^2-b^2\right)\text{Log}[\text{Cos}[c+d x]]\right)+\right.\right.$$
$$\left.\left.2\,a\,b\,\text{Sin}[2\,(c+d x)]\right)(a+b\,\text{Tan}[c+d x])^2\right)\Big/\left(2\,d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right)$$

Problem 431: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^2\,dx$$

Optimal (type 3, 58 leaves, 4 steps):

$$-2\,a\,b\,x-\frac{2\,a\,b\,\text{Cot}[c+d\,x]}{d}-\frac{a^2\,\text{Cot}[c+d\,x]^2}{2\,d}-\frac{\left(a^2-b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}$$

Result (type 3, 125 leaves):

$$-\left((b+a\,\text{Cot}[c+d\,x])^2\,\left(a^2+2\,a\,b\,c+2\,a\,b\,d\,x+a^2\,\text{Log}[\text{Sin}[c+d\,x]]-b^2\,\text{Log}[\text{Sin}[c+d\,x]]-\text{Cos}[2\,(c+d\,x)]\,\left(2\,a\,b\,(c+d\,x)+\left(a^2-b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]\right)+2\,a\,b\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/\left(2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 444: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^6\,(a+b\,\text{Tan}[c+d\,x])^3\,dx$$

Optimal (type 3, 157 leaves, 7 steps):

$$-a\,\left(a^2-3\,b^2\right)\,x-\frac{a\,\left(a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]}{d}+\frac{b\,\left(3\,a^2-b^2\right)\,\text{Cot}[c+d\,x]^2}{2\,d}+\frac{a\,\left(a^2-3\,b^2\right)\,\text{Cot}[c+d\,x]^3}{3\,d}-\frac{11\,a^2\,b\,\text{Cot}[c+d\,x]^4}{20\,d}+\frac{b\,\left(3\,a^2-b^2\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{a^2\,\text{Cot}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])}{5\,d}$$

Result (type 3, 409 leaves):

$$\frac{\left(11\,a^3\,\text{Cos}[c+d\,x]-15\,a\,b^2\,\text{Cos}[c+d\,x]\right)\,(b+a\,\text{Cot}[c+d\,x])^3}{15\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{3\,a^2\,b\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Csc}[c+d\,x]}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{a^3\,\text{Cot}[c+d\,x]\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Csc}[c+d\,x]}{5\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{b\,\left(-6\,a^2+b^2\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Sin}[c+d\,x]}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{\left(-23\,a^3\,\text{Cos}[c+d\,x]+60\,a\,b^2\,\text{Cos}[c+d\,x]\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Sin}[c+d\,x]^2}{15\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{a\,\left(a^2-3\,b^2\right)\,(c+d\,x)\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Sin}[c+d\,x]^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+\frac{\left(3\,a^2\,b-b^3\right)\,(b+a\,\text{Cot}[c+d\,x])^3\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}$$

Problem 446: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^4\,dx$$

Optimal (type 3, 128 leaves, 5 steps):

$$-\left(a^4-6a^2b^2+b^4\right)x+\frac{4ab\left(a^2-b^2\right)\mathrm{Log}[\mathrm{Cos}[c+dx]]}{d}-\frac{b^2\left(3a^2-b^2\right)\mathrm{Tan}[c+dx]}{d}-\frac{ab\,(a+b\,\mathrm{Tan}[c+dx])^2}{d}-\frac{b\,(a+b\,\mathrm{Tan}[c+dx])^3}{3d}+\frac{(a+b\,\mathrm{Tan}[c+dx])^5}{5bd}$$

Result (type 3, 433 leaves) :

$$\frac{ab^3\,(a+b\,\mathrm{Tan}[c+dx])^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{2ab\left(a^2-2b^2\right)\mathrm{Cos}[c+dx]^2\,(a+b\,\mathrm{Tan}[c+dx])^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}-\frac{\left(a^2-2ab-b^2\right)\left(a^2+2ab-b^2\right)(c+dx)\,\mathrm{Cos}[c+dx]^4\,(a+b\,\mathrm{Tan}[c+dx])^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{4\left(a^3b-ab^3\right)\mathrm{Cos}[c+dx]^4\,\mathrm{Log}[\mathrm{Cos}[c+dx]]\,(a+b\,\mathrm{Tan}[c+dx])^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{\mathrm{Cos}[c+dx]\left(30a^2b^2\,\mathrm{Sin}[c+dx]-11b^4\,\mathrm{Sin}[c+dx]\right)(a+b\,\mathrm{Tan}[c+dx])^4}{15d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{\mathrm{Cos}[c+dx]^3\left(15a^4\,\mathrm{Sin}[c+dx]-120a^2b^2\,\mathrm{Sin}[c+dx]+23b^4\,\mathrm{Sin}[c+dx]\right)(a+b\,\mathrm{Tan}[c+dx])^4}{15d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{b^4\,\mathrm{Tan}[c+dx]\,(a+b\,\mathrm{Tan}[c+dx])^4}{5d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}$$

- **Problem 454: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+dx]^6\,(a+b\,\mathrm{Tan}[c+dx])^4\,dx$$

Optimal (type 3, 170 leaves, 7 steps) :

$$-\left(a^4-6a^2b^2+b^4\right)x-\frac{\left(a^4-6a^2b^2+b^4\right)\mathrm{Cot}[c+dx]}{d}+\frac{2ab\left(a^2-b^2\right)\mathrm{Cot}[c+dx]^2}{d}+\frac{a^2\left(5a^2-27b^2\right)\mathrm{Cot}[c+dx]^3}{15d}-\frac{3a^3b\,\mathrm{Cot}[c+dx]^4}{5d}+\frac{4ab\left(a^2-b^2\right)\mathrm{Log}[\mathrm{Sin}[c+dx]]}{d}-\frac{a^2\,\mathrm{Cot}[c+dx]^5\,(a+b\,\mathrm{Tan}[c+dx])^2}{5d}$$

Result (type 3, 436 leaves) :

$$-\frac{a^3b\,(b+a\,\mathrm{Cot}[c+dx])^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}-\frac{a^4\,\mathrm{Cot}[c+dx]\,(b+a\,\mathrm{Cot}[c+dx])^4}{5d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{\left(11a^4\,\mathrm{Cos}[c+dx]-30a^2b^2\,\mathrm{Cos}[c+dx]\right)(b+a\,\mathrm{Cot}[c+dx])^4\,\mathrm{Sin}[c+dx]}{15d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{2ab\left(2a^2-b^2\right)(b+a\,\mathrm{Cot}[c+dx])^4\,\mathrm{Sin}[c+dx]^2}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{\left(-23a^4\,\mathrm{Cos}[c+dx]+120a^2b^2\,\mathrm{Cos}[c+dx]-15b^4\,\mathrm{Cos}[c+dx]\right)(b+a\,\mathrm{Cot}[c+dx])^4\,\mathrm{Sin}[c+dx]^3}{15d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}-\frac{\left(a^2-2ab-b^2\right)\left(a^2+2ab-b^2\right)(c+dx)\,(b+a\,\mathrm{Cot}[c+dx])^4\,\mathrm{Sin}[c+dx]^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}+\frac{4\left(a^3b-ab^3\right)(b+a\,\mathrm{Cot}[c+dx])^4\,\mathrm{Log}[\mathrm{Sin}[c+dx]]\,\mathrm{Sin}[c+dx]^4}{d\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}$$

- **Problem 455: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+dx]^7\,(a+b\,\mathrm{Tan}[c+dx])^4\,dx$$

Optimal (type 3, 198 leaves, 8 steps):

$$-4\,a\,b\,\left(a^2-b^2\right)\,x-\frac{4\,a\,b\,\left(a^2-b^2\right)\,\text{Cot}[c+d\,x]}{d}-\frac{\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Cot}[c+d\,x]^2}{2\,d}+\frac{4\,a\,b\,\left(a^2-b^2\right)\,\text{Cot}[c+d\,x]^3}{3\,d}+\frac{a^2\,\left(3\,a^2-16\,b^2\right)\,\text{Cot}[c+d\,x]^4}{12\,d}-\frac{7\,a^3\,b\,\text{Cot}[c+d\,x]^5}{15\,d}-\frac{\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-\frac{a^2\,\text{Cot}[c+d\,x]^6\,(a+b\,\text{Tan}[c+d\,x])^2}{6\,d}$$

Result (type 3, 481 leaves):

$$\frac{3\,a^2\,\left(a^2-2\,b^2\right)\,(b+a\,\text{Cot}[c+d\,x])^4}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{4\,a^3\,b\,\text{Cot}[c+d\,x]\,(b+a\,\text{Cot}[c+d\,x])^4}{5\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{a^4\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Csc}[c+d\,x]^2}{6\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+\frac{4\,\left(11\,a^3\,b\,\text{Cos}[c+d\,x]-5\,a\,b^3\,\text{Cos}[c+d\,x]\right)\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Sin}[c+d\,x]}{15\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+\frac{\left(-3\,a^4+12\,a^2\,b^2-b^4\right)\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Sin}[c+d\,x]^2}{2\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{4\,\left(23\,a^3\,b\,\text{Cos}[c+d\,x]-20\,a\,b^3\,\text{Cos}[c+d\,x]\right)\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Sin}[c+d\,x]^3}{15\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-\frac{4\,a\,(a-b)\,b\,(a+b)\,(c+d\,x)\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Sin}[c+d\,x]^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+\frac{\left(-a^4+6\,a^2\,b^2-b^4\right)\,(b+a\,\text{Cot}[c+d\,x])^4\,\text{Log}[\text{Sin}[c+d\,x]]\,\text{Sin}[c+d\,x]^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}$$

- **Problem 461: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d\,x]}{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 46 leaves, 2 steps):

$$\frac{b\,x}{a^2+b^2}-\frac{a\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)\,d}$$

Result (type 3, 66 leaves):

$$\frac{2\,(-i\,a+b)\,(c+d\,x)+2\,i\,a\,\text{ArcTan}[\text{Tan}[c+d\,x]]-a\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]}{2\,\left(a^2+b^2\right)\,d}$$

- **Problem 467: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^6}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 239 leaves, 8 steps):

$$-\frac{\left(a^2-b^2\right)\,x}{\left(a^2+b^2\right)^2}-\frac{2\,a\,b\,\text{Log}[\text{Cos}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}-\frac{2\,a^5\,\left(2\,a^2+3\,b^2\right)\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{b^5\,\left(a^2+b^2\right)^2\,d}+\frac{\left(4\,a^4+2\,a^2\,b^2-b^4\right)\,\text{Tan}[c+d\,x]}{b^4\,\left(a^2+b^2\right)\,d}-\frac{a\,\left(2\,a^2+b^2\right)\,\text{Tan}[c+d\,x]^2}{b^3\,\left(a^2+b^2\right)\,d}+\frac{\left(4\,a^2+b^2\right)\,\text{Tan}[c+d\,x]^3}{3\,b^2\,\left(a^2+b^2\right)\,d}-\frac{a^2\,\text{Tan}[c+d\,x]^4}{b\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 682 leaves) :

$$-\frac{(a-b)\,(a+b)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\left(2\,\mathrm{i}\,\left(2\,a^{10}\,b^4-2\,\mathrm{i}\,a^9\,b^5+5\,a^8\,b^6-5\,\mathrm{i}\,a^7\,b^7+3\,a^6\,b^8-3\,\mathrm{i}\,a^5\,b^9\right)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right)\Big/$$

$$\left((a-\mathrm{i}\,b)^4\,(a+\mathrm{i}\,b)^3\,b^9\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2\right)+\frac{2\,\mathrm{i}\,\left(2\,a^7+3\,a^5\,b^2\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{b^5\,\left(a^2+b^2\right)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{2\,\left(2\,a^3-a\,b^2\right)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\frac{\left(2\,a^7+3\,a^5\,b^2\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{b^5\,\left(a^2+b^2\right)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\frac{a\,\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}{b^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,\left(9\,a^2\,\mathrm{Sin}[c+d\,x]-4\,b^2\,\mathrm{Sin}[c+d\,x]\right)}{3\,b^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{a^5\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,\mathrm{Tan}[c+d\,x]}{3\,b^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

- **Problem 468: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^5}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 197 leaves, 7 steps) :

$$\frac{2\,a\,b\,x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2-b^2\right)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}+\frac{a^4\,\left(3\,a^2+5\,b^2\right)\,\mathrm{Log}[a+b\,\mathrm{Tan}[c+d\,x]]}{b^4\,\left(a^2+b^2\right)^2\,d}-$$

$$\frac{a\,\left(3\,a^2+2\,b^2\right)\,\mathrm{Tan}[c+d\,x]}{b^3\,\left(a^2+b^2\right)\,d}+\frac{\left(3\,a^2+b^2\right)\,\mathrm{Tan}[c+d\,x]^2}{2\,b^2\,\left(a^2+b^2\right)\,d}-\frac{a^2\,\mathrm{Tan}[c+d\,x]^3}{b\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 600 leaves) :

$$\frac{2\,a\,b\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

$$\Big(\big(3\,\mathrm{i}\,a^9\,b^3+3\,a^8\,b^4+8\,\mathrm{i}\,a^7\,b^5+8\,a^6\,b^6+5\,\mathrm{i}\,a^5\,b^7+5\,a^4\,b^8\big)\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\Big)\Big/$$

$$\Big((a-\mathrm{i}\,b)^4\,(a+\mathrm{i}\,b)^3\,b^7\,d\,(a+b\,\text{Tan}[c+d\,x])^2\Big)-\frac{\mathrm{i}\,\big(3\,a^6+5\,a^4\,b^2\big)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{b^4\,\big(a^2+b^2\big)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\big(-3\,a^2+b^2\big)\,\text{Log}[\text{Cos}[c+d\,x]]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\big(3\,a^6+5\,a^4\,b^2\big)\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{2\,b^4\,\big(a^2+b^2\big)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$

$$\frac{\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}{2\,b^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{a^4\,\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-$$

$$\frac{2\,a\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}[c+d\,x]}{b^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}$$

- **Problem 469: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^4}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 155 leaves, 6 steps):

$$\frac{\big(a^2-b^2\big)\,x}{\big(a^2+b^2\big)^2}+\frac{2\,a\,b\,\text{Log}[\text{Cos}[c+d\,x]]}{\big(a^2+b^2\big)^2\,d}-\frac{2\,a^3\,\big(a^2+2\,b^2\big)\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{b^3\,\big(a^2+b^2\big)^2\,d}+\frac{\big(2\,a^2+b^2\big)\,\text{Tan}[c+d\,x]}{b^2\,\big(a^2+b^2\big)\,d}-\frac{a^2\,\text{Tan}[c+d\,x]^2}{b\,\big(a^2+b^2\big)\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 329 leaves):

$$\frac{1}{b^3\,\big(a^2+b^2\big)^2\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

$$\Big(a\,\Big((a+\mathrm{i}\,b)^2\,\big(-2\,\mathrm{i}\,a^3-4\,a^2\,b+2\,\mathrm{i}\,a\,b^2+b^3\big)\,(c+d\,x)+2\,a\,\big(a^2+b^2\big)^2\,\text{Log}[\text{Cos}[c+d\,x]]-a^3\,\big(a^2+2\,b^2\big)\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\Big)+$$
$$b\,\Big(2\,a^5+3\,a^3\,b^2+a\,b^4-2\,\mathrm{i}\,a^5\,c-4\,\mathrm{i}\,a^3\,b^2\,c+a^2\,b^3\,c-b^5\,c-2\,\mathrm{i}\,a^5\,d\,x-4\,\mathrm{i}\,a^3\,b^2\,d\,x+a^2\,b^3\,d\,x-b^5\,d\,x+$$
$$2\,a\,\big(a^2+b^2\big)^2\,\text{Log}[\text{Cos}[c+d\,x]]-a^3\,\big(a^2+2\,b^2\big)\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\Big)\,\text{Tan}[c+d\,x]+$$
$$b^2\,\big(a^2+b^2\big)^2\,\text{Tan}[c+d\,x]^2+2\,\mathrm{i}\,a^3\,\big(a^2+2\,b^2\big)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(a+b\,\text{Tan}[c+d\,x])\Big)$$

- **Problem 470: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^3}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 114 leaves, 5 steps):

$$-\frac{2\,a\,b\,x}{\left(a^2+b^2\right)^2}+\frac{\left(a^2-b^2\right)\,\text{Log}[\text{Cos}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}+\frac{a^2\,\left(a^2+3\,b^2\right)\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{b^2\,\left(a^2+b^2\right)^2\,d}+\frac{a^3}{b^2\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 251 leaves):

$$\frac{1}{2\,b^2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])}$$
$$\Big(a\,\Big(-2\,\left(a^2+b^2\right)^2\,\text{Log}[\text{Cos}[c+d\,x]]+a\,\left(2\,(a+i\,b)^2\,(i\,a+2\,b)\,(c+d\,x)+a\,\left(a^2+3\,b^2\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)\Big)+$$
$$b\,\Big(-2\,\left(a^2+b^2\right)^2\,\text{Log}[\text{Cos}[c+d\,x]]+$$
$$a\,\left(2\,i\,\left(2\,i\,b^3\,(c+d\,x)+a^3\,(i+c+d\,x)+a\,b^2\,(i+3\,c+3\,d\,x)\right)+a\,\left(a^2+3\,b^2\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)\Big)$$
$$\text{Tan}[c+d\,x]-2\,i\,a^2\,\left(a^2+3\,b^2\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(a+b\,\text{Tan}[c+d\,x])\Big)$$

■ Problem 471: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tan}[c+d\,x]^2}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 88 leaves, 3 steps):

$$-\frac{\left(a^2-b^2\right)\,x}{\left(a^2+b^2\right)^2}-\frac{2\,a\,b\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}-\frac{a^2}{b\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 161 leaves):

$$\Big(-a\,\left((a+i\,b)^2\,(c+d\,x)+a\,b\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)+$$
$$\left((a+i\,b)\,\left(a^2-i\,b^2\,(c+d\,x)-a\,b\,(i+c+d\,x)\right)-a\,b^2\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)\,\text{Tan}[c+d\,x]+$$
$$2\,i\,a\,b\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(a+b\,\text{Tan}[c+d\,x])\Big)\Big/\left(\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])\right)$$

■ Problem 472: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[c+d\,x]}{(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 82 leaves, 3 steps):

$$\frac{2\,a\,b\,x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2-b^2\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}+\frac{a}{\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 182 leaves):

$$\Big(a\,\left(-2\,i\,(a+i\,b)^2\,(c+d\,x)+\left(-a^2+b^2\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)+$$
$$b\,\left(2\,(-i\,a+b)\,(a\,(-i+c+d\,x)+i\,b\,(i+c+d\,x))+\left(-a^2+b^2\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\right)\,\text{Tan}[c+d\,x]+$$
$$2\,i\,\left(a^2-b^2\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(a+b\,\text{Tan}[c+d\,x])\Big)\Big/\left(2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 473: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 82 leaves, 3 steps):

$$\frac{\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^2}+\frac{2\,a\,b\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^2 d}-\frac{b}{\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 172 leaves):

$$\Big(a^2\left((a+i\,b)^2(c+d\,x)+a\,b\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)+ b\left((a+i\,b)\left(-i\,b^2+a\,b\,(1+i\,c+i\,d\,x)+a^2(c+d\,x)\right)+a^2\,b\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)\mathrm{Tan}[c+d\,x]- 2\,i\,a^2\,b\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,(a+b\,\mathrm{Tan}[c+d\,x])\Big)\Big/\left(a\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 474: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 107 leaves, 4 steps):

$$-\frac{2\,a\,b\,x}{\left(a^2+b^2\right)^2}+\frac{\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^2 d}-\frac{b^2\left(3\,a^2+b^2\right)\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{a^2\left(a^2+b^2\right)^2 d}+\frac{b^2}{a\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 256 leaves):

$$\frac{1}{2\,a^2\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+d\,x])}\Big(a\left(2\left(a^2+b^2\right)^2\mathrm{Log}[\mathrm{Sin}[c+d\,x]]-b\left(2\,(2\,a-i\,b)\,(a+i\,b)^2(c+d\,x)+b\left(3\,a^2+b^2\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)\right)+ b\Big(2\left(a^2+b^2\right)^2\mathrm{Log}[\mathrm{Sin}[c+d\,x]]+ b\left(-2\left(b^3(1+i\,c+i\,d\,x)+a^2\,b\,(1+3\,i\,c+3\,i\,d\,x)+2\,a^3(c+d\,x)\right)-b\left(3\,a^2+b^2\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)\Big) \mathrm{Tan}[c+d\,x]+2\,i\,b^2\left(3\,a^2+b^2\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,(a+b\,\mathrm{Tan}[c+d\,x])\Big)$$

- **Problem 475: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[c+d\,x]^2}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 150 leaves, 5 steps):

$$-\frac{\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^2}-\frac{2\,b\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^3 d}+\frac{2\,b^3\left(2\,a^2+b^2\right)\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{a^3\left(a^2+b^2\right)^2 d}- \frac{b\left(a^2+2\,b^2\right)}{a^2\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])}-\frac{\mathrm{Cot}[c+d\,x]}{a\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 535 leaves) :

$$\frac{b^4 \operatorname{Csc}[c+d x]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{a^3\,(a-i b)\,(a+i b)\, d\,(b+a \operatorname{Cot}[c+d x])^2}-\frac{(a-b)\,(a+b)\,(c+d x) \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{(a-i b)^2\,(a+i b)^2\, d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\left(2\left(2 i a^{10} b^3+2 a^9 b^4+3 i a^8 b^5+3 a^7 b^6+i a^6 b^7+a^5 b^8\right)(c+d x) \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^8\,(a-i b)^4\,(a+i b)^3\, d\,(b+a \operatorname{Cot}[c+d x])^2\right)-\frac{2 i\left(2 a^2 b^3+b^5\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^3\left(a^2+b^2\right)^2 d\,(b+a \operatorname{Cot}[c+d x])^2}-$$
$$\frac{\operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^2 d\,(b+a \operatorname{Cot}[c+d x])^2}-\frac{2 b \operatorname{Csc}[c+d x]^2 \operatorname{Log}[\operatorname{Sin}[c+d x]]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^3 d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\frac{\left(2 a^2 b^3+b^5\right) \operatorname{Csc}[c+d x]^2 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^3\left(a^2+b^2\right)^2 d\,(b+a \operatorname{Cot}[c+d x])^2}$$

Problem 476: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c+d x]^3}{(a+b \operatorname{Tan}[c+d x])^2}\, dx$$

Optimal (type 3, 189 leaves, 6 steps) :

$$\frac{2 a b x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2-3 b^2\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^4 d}-\frac{b^4\left(5 a^2+3 b^2\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{a^4\left(a^2+b^2\right)^2 d}+$$
$$\frac{b^2\left(2 a^2+3 b^2\right)}{a^3\left(a^2+b^2\right) d\,(a+b \operatorname{Tan}[c+d x])}+\frac{3 b \operatorname{Cot}[c+d x]}{2 a^2 d\,(a+b \operatorname{Tan}[c+d x])}-\frac{\operatorname{Cot}[c+d x]^2}{2 a d\,(a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 596 leaves) :

$$-\frac{b^5 \operatorname{Csc}[c+d x]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{a^4\,(a-i b)\,(a+i b)\, d\,(b+a \operatorname{Cot}[c+d x])^2}+\frac{2 a b\,(c+d x) \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{(a-i b)^2\,(a+i b)^2\, d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\left(\left(-5 i a^{11} b^4-5 a^{10} b^5-8 i a^9 b^6-8 a^8 b^7-3 i a^7 b^8-3 a^6 b^9\right)(c+d x) \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^{10}\,(a-i b)^4\,(a+i b)^3\, d\,(b+a \operatorname{Cot}[c+d x])^2\right)-\frac{i\left(-5 a^2 b^4-3 b^6\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^4\left(a^2+b^2\right)^2 d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\frac{2 b \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^2\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^3 d\,(b+a \operatorname{Cot}[c+d x])^2}-\frac{\operatorname{Csc}[c+d x]^4\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{2 a^2 d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\frac{\left(-a^2+3 b^2\right) \operatorname{Csc}[c+d x]^2 \operatorname{Log}[\operatorname{Sin}[c+d x]]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^4 d\,(b+a \operatorname{Cot}[c+d x])^2}+$$
$$\frac{\left(-5 a^2 b^4-3 b^6\right) \operatorname{Csc}[c+d x]^2 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{2 a^4\left(a^2+b^2\right)^2 d\,(b+a \operatorname{Cot}[c+d x])^2}$$

Problem 477: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^6}{(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 283 leaves, 8 steps):

$$-\frac{a\left(a^2-3 b^2\right) x}{\left(a^2+b^2\right)^3}-\frac{b\left(3 a^2-b^2\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+\frac{a^4\left(6 a^4+17 a^2 b^2+15 b^4\right) \text{Log}[a+b\,\text{Tan}[c+d x]]}{b^5\left(a^2+b^2\right)^3 d}-\frac{a\left(6 a^4+11 a^2 b^2+3 b^4\right) \text{Tan}[c+d x]}{b^4\left(a^2+b^2\right)^2 d}+\frac{\left(6 a^4+11 a^2 b^2+b^4\right) \text{Tan}[c+d x]^2}{2 b^3\left(a^2+b^2\right)^2 d}-\frac{a^2\,\text{Tan}[c+d x]^4}{2 b\left(a^2+b^2\right) d\,(a+b\,\text{Tan}[c+d x])^2}-\frac{2 a^2\left(a^2+2 b^2\right) \text{Tan}[c+d x]^3}{b^2\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 748 leaves):

$$-\frac{a^6\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{2\,(a-i b)^2\,(a+i b)^2\,b^3\,d\,(a+b\,\text{Tan}[c+d x])^3}-\frac{a\left(a^2-3 b^2\right)(c+d x)\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{(a-i b)^3\,(a+i b)^3\,d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\Big(\left(6 i a^{13} b^4+6 a^{12} b^5+29 i a^{11} b^6+29 a^{10} b^7+55 i a^9 b^8+55 a^8 b^9+47 i a^7 b^{10}+47 a^6 b^{11}+15 i a^5 b^{12}+15 a^4 b^{13}\right)$$
$$(c+d x)\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\Big)\Big/\left((a-i b)^6\,(a+i b)^5\,b^9\,d\,(a+b\,\text{Tan}[c+d x])^3\right)-$$
$$\frac{i\left(6 a^8+17 a^6 b^2+15 a^4 b^4\right) \text{ArcTan}[\text{Tan}[c+d x]]\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{b^5\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\frac{\left(-6 a^2+b^2\right) \text{Log}[\text{Cos}[c+d x]]\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{b^5\,d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\Big(\left(6 a^8+17 a^6 b^2+15 a^4 b^4\right) \text{Log}\left[(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\Big)\Big/$$
$$\left(2 b^5\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d x])^3\right)+\frac{\text{Sec}[c+d x]^5\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{2 b^3\,d\,(a+b\,\text{Tan}[c+d x])^3}-$$
$$\frac{3\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(a^6\,\text{Sin}[c+d x]+2 a^4 b^2\,\text{Sin}[c+d x]\right)}{(a-i b)^2\,(a+i b)^2\,b^4\,d\,(a+b\,\text{Tan}[c+d x])^3}-$$
$$\frac{3 a\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,\text{Tan}[c+d x]}{b^4\,d\,(a+b\,\text{Tan}[c+d x])^3}$$

Problem 478: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^5}{(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 239 leaves, 7 steps):

$$\frac{b\left(3a^2-b^2\right)x}{\left(a^2+b^2\right)^3}-\frac{a\left(a^2-3b^2\right)\text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}-\frac{a^3\left(3a^4+9a^2b^2+10b^4\right)\text{Log}[a+b\,\text{Tan}[c+d x]]}{b^4\left(a^2+b^2\right)^3 d}+\frac{\left(3a^4+6a^2b^2+b^4\right)\text{Tan}[c+d x]}{b^3\left(a^2+b^2\right)^2 d}-\frac{a^2\,\text{Tan}[c+d x]^3}{2b\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d x])^2}-\frac{a^2\left(3a^2+7b^2\right)\text{Tan}[c+d x]^2}{2b^2\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 694 leaves) :

$$\frac{a^5\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{2\,(a-i\,b)^2\,(a+i\,b)^2\,b^2\,d\,(a+b\,\text{Tan}[c+d x])^3}+\frac{b\left(3a^2-b^2\right)(c+d x)\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{(a-i\,b)^3\,(a+i\,b)^3\,d\,(a+b\,\text{Tan}[c+d x])^3}-$$
$$\left(i\left(3a^{12}b^3-3\,i\,a^{11}b^4+15a^{10}b^5-15\,i\,a^9b^6+31a^8b^7-31\,i\,a^7b^8+29a^6b^9-29\,i\,a^5b^{10}+10a^4b^{11}-10\,i\,a^3b^{12}\right)\right.$$
$$\left.(c+d x)\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right)\Big/\left((a-i\,b)^6\,(a+i\,b)^5\,b^7\,d\,(a+b\,\text{Tan}[c+d x])^3\right)-$$
$$\frac{i\left(-3a^7-9a^5b^2-10a^3b^4\right)\text{ArcTan}[\text{Tan}[c+d x]]\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{b^4\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\frac{3a\,\text{Log}[\text{Cos}[c+d x]]\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}{b^4\,d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\left(\left(-3a^7-9a^5b^2-10a^3b^4\right)\text{Log}\left[(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right]\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right)\Big/$$
$$\left(2b^4\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d x])^3\right)+\frac{\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(2a^5\,\text{Sin}[c+d x]+5a^3b^2\,\text{Sin}[c+d x]\right)}{(a-i\,b)^2\,(a+i\,b)^2\,b^3\,d\,(a+b\,\text{Tan}[c+d x])^3}+$$
$$\frac{\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,\text{Tan}[c+d x]}{b^3\,d\,(a+b\,\text{Tan}[c+d x])^3}$$

- **Problem 479: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d x]^4}{(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 183 leaves, 6 steps) :

$$\frac{a\left(a^2-3b^2\right)x}{\left(a^2+b^2\right)^3}+\frac{b\left(3a^2-b^2\right)\text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+\frac{a^2\left(a^4+3a^2b^2+6b^4\right)\text{Log}[a+b\,\text{Tan}[c+d x]]}{b^3\left(a^2+b^2\right)^3 d}-\frac{a^2\,\text{Tan}[c+d x]^2}{2b\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d x])^2}+\frac{a^3\left(a^2+3b^2\right)}{b^3\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 351 leaves) :

$$\frac{1}{2\, b^3 \left(a^2+b^2\right)^3 d\, (a+b \operatorname{Tan}[c+d x])^3}$$
$$\operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \left(-a^4 b^2 \left(a^2+b^2\right)-2 a^2 b \left(a^2+b^2\right) \left(a^2+4 b^2\right) \operatorname{Sin}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])+\right.$$
$$2 a b^3 \left(a^2-3 b^2\right) (c+d x) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2+2 i a^2 \left(a^4+3 a^2 b^2+6 b^4\right) (c+d x) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2-$$
$$2 i a^2 \left(a^4+3 a^2 b^2+6 b^4\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2-2 \left(a^2+b^2\right)^3 \operatorname{Log}[\operatorname{Cos}[c+d x]]$$
$$\left.(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2+a^2 \left(a^4+3 a^2 b^2+6 b^4\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right)$$

- **Problem 484: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c+d x]}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 168 leaves, 5 steps):

$$-\frac{b \left(3 a^2-b^2\right) x}{\left(a^2+b^2\right)^3}+\frac{\operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^3 d}-\frac{b^2 \left(6 a^4+3 a^2 b^2+b^4\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{a^3 \left(a^2+b^2\right)^3 d}+$$
$$\frac{b^2}{2 a \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^2}+\frac{b^2 \left(3 a^2+b^2\right)}{a^2 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 638 leaves):

$$\frac{b^4 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 a (a-i b)^2 (a+i b)^2 d (a+b \operatorname{Tan}[c+d x])^3}-\frac{b \left(3 a^2-b^2\right) (c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{(a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\left(\left(-6 i a^{14} b^2-6 a^{13} b^3-15 i a^{12} b^4-15 a^{11} b^5-13 i a^{10} b^6-13 a^9 b^7-5 i a^8 b^8-5 a^7 b^9-i a^6 b^{10}-a^5 b^{11}\right)\right.$$
$$\left.(c+d x) \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) / \left(a^8 (a-i b)^6 (a+i b)^5 d (a+b \operatorname{Tan}[c+d x])^3\right)-$$
$$\frac{i \left(-6 a^4 b^2-3 a^2 b^4-b^6\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{a^3 \left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\frac{\operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{a^3 d (a+b \operatorname{Tan}[c+d x])^3}+$$
$$\left(\left(-6 a^4 b^2-3 a^2 b^4-b^6\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) /$$
$$\left(2 a^3 \left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])^3\right)+\frac{\operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \left(-4 a^2 b^3 \operatorname{Sin}[c+d x]-b^5 \operatorname{Sin}[c+d x]\right)}{a^3 (a-i b)^2 (a+i b)^2 d (a+b \operatorname{Tan}[c+d x])^3}$$

- **Problem 485: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c+d x]^2}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 211 leaves, 6 steps):

$$-\frac{a\left(a^2-3b^2\right)x}{\left(a^2+b^2\right)^3}-\frac{3b\,\mathrm{Log}[\mathrm{Sin}[c+dx]]}{a^4 d}+\frac{b^3\left(10a^4+9a^2b^2+3b^4\right)\mathrm{Log}[a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx]]}{a^4\left(a^2+b^2\right)^3 d}-\frac{b\left(2a^2+3b^2\right)}{2a^2\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+dx])^2}-\frac{\mathrm{Cot}[c+dx]}{a\,d\,(a+b\,\mathrm{Tan}[c+dx])^2}-\frac{b\left(a^4+6a^2b^2+3b^4\right)}{a^3\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+dx])}$$

Result (type 3, 691 leaves):

$$-\frac{b^5\,\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])}{2a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\mathrm{Cot}[c+dx])^3}-\frac{a\left(a^2-3b^2\right)(c+dx)\,\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3}{(a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^3\,d\,(b+a\,\mathrm{Cot}[c+dx])^3}+$$
$$\left(\left(10\,\mathrm{i}\,a^{15}b^3+10a^{14}b^4+29\,\mathrm{i}\,a^{13}b^5+29a^{12}b^6+31\,\mathrm{i}\,a^{11}b^7+31a^{10}b^8+15\,\mathrm{i}\,a^9b^9+15a^8b^{10}+3\,\mathrm{i}\,a^7b^{11}+3a^6b^{12}\right)\right.$$
$$\left.(c+dx)\,\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3\right)\Big/\left(a^{10}\,(a-\mathrm{i}\,b)^6\,(a+\mathrm{i}\,b)^5\,d\,(b+a\,\mathrm{Cot}[c+dx])^3\right)-$$
$$\frac{\mathrm{i}\left(10a^4b^3+9a^2b^5+3b^7\right)\mathrm{ArcTan}[\mathrm{Tan}[c+dx]]\,\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3}{a^4\left(a^2+b^2\right)^3 d\,(b+a\,\mathrm{Cot}[c+dx])^3}-$$
$$\frac{\mathrm{Cot}[c+dx]\,\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3}{a^3\,d\,(b+a\,\mathrm{Cot}[c+dx])^3}-\frac{3b\,\mathrm{Csc}[c+dx]^3\,\mathrm{Log}[\mathrm{Sin}[c+dx]]\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3}{a^4\,d\,(b+a\,\mathrm{Cot}[c+dx])^3}+$$
$$\left(\left(10a^4b^3+9a^2b^5+3b^7\right)\mathrm{Csc}[c+dx]^3\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^2\right](a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^3\right)\Big/$$
$$\left(2a^4\left(a^2+b^2\right)^3 d\,(b+a\,\mathrm{Cot}[c+dx])^3\right)+\frac{\mathrm{Csc}[c+dx]^3\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^2\left(5a^2b^4\,\mathrm{Sin}[c+dx]+2b^6\,\mathrm{Sin}[c+dx]\right)}{a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\mathrm{Cot}[c+dx])^3}$$

- **Problem 486: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+dx]^6}{(a+b\,\mathrm{Tan}[c+dx])^4}\,dx$$

Optimal (type 3, 315 leaves, 8 steps):

$$-\frac{\left(a^4-6a^2b^2+b^4\right)x}{\left(a^2+b^2\right)^4}-\frac{4ab\left(a^2-b^2\right)\mathrm{Log}[\mathrm{Cos}[c+dx]]}{\left(a^2+b^2\right)^4 d}-\frac{4a^3\left(a^6+4a^4b^2+6a^2b^4+5b^6\right)\mathrm{Log}[a+b\,\mathrm{Tan}[c+dx]]}{b^5\left(a^2+b^2\right)^4 d}+\frac{\left(4a^6+12a^4b^2+13a^2b^4+b^6\right)\mathrm{Tan}[c+dx]}{b^4\left(a^2+b^2\right)^3 d}-\frac{a^2\,\mathrm{Tan}[c+dx]^4}{3b\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+dx])^3}-\frac{a^2\left(2a^2+5b^2\right)\mathrm{Tan}[c+dx]^3}{3b^2\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+dx])^2}-\frac{2a^2\left(a^4+3a^2b^2+4b^4\right)\mathrm{Tan}[c+dx]^2}{b^3\left(a^2+b^2\right)^3 d\,(a+b\,\mathrm{Tan}[c+dx])}$$

Result (type 3, 1281 leaves):

$$-\left(4\,i\,\left(a^{16}b^4-i\,a^{15}b^5+7\,a^{14}b^6-7\,i\,a^{13}b^7+21\,a^{12}b^8-21\,i\,a^{11}b^9+36\,a^{10}b^{10}-36\,i\,a^9b^{11}+37\,a^8b^{12}-37\,i\,a^7b^{13}+21\,a^6b^{14}-21\,i\,a^5b^{15}+5\,a^4b^{16}-5\,i\,a^3b^{17}\right)(c+d\,x)\,\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\right)\Big/\left((a-i\,b)^8\,(a+i\,b)^7\,b^9\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^4\right)+$$

$$\frac{4\,i\,\left(a^9+4\,a^7b^2+6\,a^5b^4+5\,a^3b^6\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4}{b^5\left(a^2+b^2\right)^4d\,(a+b\,\mathrm{Tan}[c+d\,x])^4}+$$

$$\frac{4\,a\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4}{b^5\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^4}-$$

$$\left(2\left(a^9+4\,a^7b^2+6\,a^5b^4+5\,a^3b^6\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\right)\Big/\left(b^5\left(a^2+b^2\right)^4d\,(a+b\,\mathrm{Tan}[c+d\,x])^4\right)+$$

$$\frac{1}{24\,b^4\,(-i\,a+b)^4\,(i\,a+b)^4\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^4}\mathrm{Sec}[c+d\,x]^5\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$
$$\left(39\,a^{10}b+171\,a^8b^3+276\,a^6b^5+180\,a^4b^7+45\,a^2b^9+9\,b^{11}-9\,a^7b^4(c+d\,x)+45\,a^5b^6(c+d\,x)+45\,a^3b^8(c+d\,x)-9\,a\,b^{10}(c+d\,x)+\right.$$
$$12\,a^{10}b\,\mathrm{Cos}[2(c+d\,x)]+32\,a^8b^3\,\mathrm{Cos}[2(c+d\,x)]-16\,a^6b^5\,\mathrm{Cos}[2(c+d\,x)]-72\,a^4b^7\,\mathrm{Cos}[2(c+d\,x)]-48\,a^2b^9\,\mathrm{Cos}[2(c+d\,x)]-$$
$$12\,b^{11}\,\mathrm{Cos}[2(c+d\,x)]-12\,a^7b^4(c+d\,x)\,\mathrm{Cos}[2(c+d\,x)]+72\,a^5b^6(c+d\,x)\,\mathrm{Cos}[2(c+d\,x)]-12\,a^3b^8(c+d\,x)\,\mathrm{Cos}[2(c+d\,x)]-$$
$$27\,a^{10}b\,\mathrm{Cos}[4(c+d\,x)]-115\,a^8b^3\,\mathrm{Cos}[4(c+d\,x)]-196\,a^6b^5\,\mathrm{Cos}[4(c+d\,x)]-108\,a^4b^7\,\mathrm{Cos}[4(c+d\,x)]+3\,a^2b^9\,\mathrm{Cos}[4(c+d\,x)]+$$
$$3\,b^{11}\,\mathrm{Cos}[4(c+d\,x)]-3\,a^7b^4(c+d\,x)\,\mathrm{Cos}[4(c+d\,x)]+27\,a^5b^6(c+d\,x)\,\mathrm{Cos}[4(c+d\,x)]-57\,a^3b^8(c+d\,x)\,\mathrm{Cos}[4(c+d\,x)]+$$
$$9\,a\,b^{10}(c+d\,x)\,\mathrm{Cos}[4(c+d\,x)]+24\,a^{11}\,\mathrm{Sin}[2(c+d\,x)]+158\,a^9b^2\,\mathrm{Sin}[2(c+d\,x)]+396\,a^7b^4\,\mathrm{Sin}[2(c+d\,x)]+$$
$$412\,a^5b^6\,\mathrm{Sin}[2(c+d\,x)]+168\,a^3b^8\,\mathrm{Sin}[2(c+d\,x)]+18\,a\,b^{10}\,\mathrm{Sin}[2(c+d\,x)]-18\,a^6b^5(c+d\,x)\,\mathrm{Sin}[2(c+d\,x)]+$$
$$102\,a^4b^7(c+d\,x)\,\mathrm{Sin}[2(c+d\,x)]+18\,a^2b^9(c+d\,x)\,\mathrm{Sin}[2(c+d\,x)]-6\,b^{11}(c+d\,x)\,\mathrm{Sin}[2(c+d\,x)]+12\,a^{11}\,\mathrm{Sin}[4(c+d\,x)]+$$
$$35\,a^9b^2\,\mathrm{Sin}[4(c+d\,x)]+18\,a^7b^4\,\mathrm{Sin}[4(c+d\,x)]-74\,a^5b^6\,\mathrm{Sin}[4(c+d\,x)]-78\,a^3b^8\,\mathrm{Sin}[4(c+d\,x)]-9\,a\,b^{10}\,\mathrm{Sin}[4(c+d\,x)]-$$
$$\left.9\,a^6b^5(c+d\,x)\,\mathrm{Sin}[4(c+d\,x)]+57\,a^4b^7(c+d\,x)\,\mathrm{Sin}[4(c+d\,x)]-27\,a^2b^9(c+d\,x)\,\mathrm{Sin}[4(c+d\,x)]+3\,b^{11}(c+d\,x)\,\mathrm{Sin}[4(c+d\,x)]\right)$$

- **Problem 487: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^5}{(a+b\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 256 leaves, 7 steps):

$$\frac{4\,a\,b\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^4}-\frac{\left(a^4-6\,a^2b^2+b^4\right)\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{\left(a^2+b^2\right)^4d}+\frac{a^2\left(a^6+4\,a^4b^2+5\,a^2b^4+10\,b^6\right)\mathrm{Log}[a+b\,\mathrm{Tan}[c+d\,x]]}{b^4\left(a^2+b^2\right)^4d}-$$
$$\frac{a^2\,\mathrm{Tan}[c+d\,x]^3}{3\,b\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{a^2\left(a^2+3\,b^2\right)\mathrm{Tan}[c+d\,x]^2}{2\,b^2\left(a^2+b^2\right)^2d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{a^3\left(a^4+3\,a^2b^2+6\,b^4\right)}{b^4\left(a^2+b^2\right)^3d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 788 leaves):

$$-\frac{a^4 \left(3 a^2+13 b^2\right) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{6 (a-i b)^3 (a+i b)^3 b^2 d (a+b \text{Tan}[c+d x])^4}+\frac{4 a (a-b) b (a+b) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{(a-i b)^4 (a+i b)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\Big(\big(i a^{15} b^3+a^{14} b^4+7 i a^{13} b^5+7 a^{12} b^6+20 i a^{11} b^7+20 a^{10} b^8+38 i a^9 b^9+38 a^8 b^{10}+49 i a^7 b^{11}+49 a^6 b^{12}+35 i a^5 b^{13}+35 a^4 b^{14}+10 i a^3 b^{15}+10 a^2 b^{16}\big) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\Big) \Big/ \left((a-i b)^8 (a+i b)^7 b^7 d (a+b \text{Tan}[c+d x])^4\right)-$$

$$\frac{i \left(a^8+4 a^6 b^2+5 a^4 b^4+10 a^2 b^6\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{b^4 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4}-$$

$$\frac{\text{Log}[\text{Cos}[c+d x]] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{b^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\Big(\left(a^8+4 a^6 b^2+5 a^4 b^4+10 a^2 b^6\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\Big) \Big/ \left(2 b^4 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4\right)+$$

$$\left(\text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-3 a^6 \text{Sin}[c+d x]-11 a^4 b^2 \text{Sin}[c+d x]-30 a^2 b^4 \text{Sin}[c+d x]\right)\right) \Big/ \left(3 (a-i b)^3 (a+i b)^3 b^3 d (a+b \text{Tan}[c+d x])^4\right)-\frac{a^4 \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \text{Tan}[c+d x]}{3 (a-i b)^2 (a+i b)^2 b d (a+b \text{Tan}[c+d x])^4}$$

- **Problem 488: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^4}{(a+b \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 208 leaves, 5 steps) :

$$\frac{\left(a^4-6 a^2 b^2+b^4\right) x}{\left(a^2+b^2\right)^4}+\frac{4 a b \left(a^2-b^2\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^4 d}-$$

$$\frac{a^2 \text{Tan}[c+d x]^2}{3 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^3}+\frac{a^3 \left(a^2+4 b^2\right)}{3 b^3 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}-\frac{a^2 \left(2 a^4+7 a^2 b^2+17 b^4\right)}{3 b^3 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 614 leaves) :

$$\frac{5 a^3 b \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{3 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^4}+\frac{\left(a^2-2 a b-b^2\right) \left(a^2+2 a b-b^2\right) (c+d x) \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}{(a-i b)^4 (a+i b)^4 d (a+b \operatorname{Tan}[c+d x])^4}+$$

$$\left(4 \left(i a^{10} b+a^9 b^2+2 i a^8 b^3+2 a^7 b^4-2 i a^4 b^7-2 a^3 b^8-i a^2 b^9-a b^{10}\right) (c+d x) \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4\right) \Big/$$

$$\left((a-i b)^8 (a+i b)^7 d (a+b \operatorname{Tan}[c+d x])^4\right)-\frac{4 i \left(a^3 b-a b^3\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}{\left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])^4}+$$

$$\frac{2 \left(a^3 b-a b^3\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4}{\left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])^4}-$$

$$\frac{2 \operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \left(2 a^3 \operatorname{Sin}[c+d x]-9 a b^2 \operatorname{Sin}[c+d x]\right)}{3 (a-i b)^3 (a+i b)^3 d (a+b \operatorname{Tan}[c+d x])^4}+$$

$$\frac{a^3 \operatorname{Sec}[c+d x]^3 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \operatorname{Tan}[c+d x]}{3 (a-i b)^2 (a+i b)^2 d (a+b \operatorname{Tan}[c+d x])^4}$$

- **Problem 489: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c+d x]^3}{(a+b \operatorname{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 189 leaves, 5 steps):

$$-\frac{4 a b \left(a^2-b^2\right) x}{\left(a^2+b^2\right)^4}+\frac{\left(a^4-6 a^2 b^2+b^4\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{\left(a^2+b^2\right)^4 d}-$$

$$\frac{a^2 \operatorname{Tan}[c+d x]}{3 b \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^3}-\frac{a^2 \left(a^2+7 b^2\right)}{6 b^2 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])^2}-\frac{a \left(a^2-3 b^2\right)}{\left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 385 leaves):

$$\frac{1}{12 \left(a^2+b^2\right)^4 d (a+b \operatorname{Tan}[c+d x])^4}$$

$$\operatorname{Sec}[c+d x]^4 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \Bigg(-(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 \Bigg(48 a (a-b) b (a+b) (c+d x)-12 i \left(a^4-6 a^2 b^2+b^4\right) (c+d x)+$$

$$12 i \left(a^4-6 a^2 b^2+b^4\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]]-6 \left(a^4-6 a^2 b^2+b^4\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right]+$$

$$\frac{2 b \left(a^2-b^2\right) \left(a^2+b^2\right)^2 \operatorname{Sin}[c+d x]}{(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}-\frac{\left(a^2+b^2\right) \left(3 a^4-16 a^2 b^2+b^4\right)}{(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}+\frac{44 b \left(-a^4+b^4\right) \operatorname{Sin}[c+d x]}{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}\Bigg)+$$

$$\left(a^2+b^2\right)^2 \left(3 a \left(a^2+b^2\right) \operatorname{Cos}[c+d x]+b \left(-4 a b \operatorname{Cos}[3 (c+d x)]+\left(5 a^2+b^2+4 \left(a^2-b^2\right) \operatorname{Cos}[2 (c+d x)]\right) \operatorname{Sin}[c+d x]\right)\right)\Bigg)$$

- **Problem 490: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^2}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 169 leaves, 5 steps):

$$-\frac{\left(a^4-6\,a^2\,b^2+b^4\right)x}{\left(a^2+b^2\right)^4}-\frac{4\,a\,b\,\left(a^2-b^2\right)\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^4 d}-\frac{a^2}{3\,b\,\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^3}+\frac{a\,b}{\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{b\,\left(3\,a^2-b^2\right)}{\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 514 leaves):

$$\frac{1}{24\,a\,\left(a^2+b^2\right)^4 d\,(a+b\,\text{Tan}[c+d\,x])^4}\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\\ \Big(\left(a^2+b^2\right)^3\left(-a\,b\,\text{Cos}[3\,(c+d\,x)]+\left(2\,a^2+b^2+\left(a^2-b^2\right)\text{Cos}[2\,(c+d\,x)]\right)\text{Sin}[c+d\,x]\right)-(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\\ \Big(96\,i\,a^2\,b\,\left(a^2-b^2\right)(c+d\,x)-96\,i\,a^2\,b\,\left(a^2-b^2\right)\text{ArcTan}[\text{Tan}[c+d\,x]]+48\,a^2\,b\,\left(a^2-b^2\right)\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]+\\ \frac{1}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}\Big(6\,a\,\left(a^2+b^2\right)\left(2\,a^4\,b+8\,a^2\,b^3-2\,b^5+3\,a^5\,(c+d\,x)-18\,a^3\,b^2\,(c+d\,x)+3\,a\,b^4\,(c+d\,x)\right)\text{Cos}[c+d\,x]+\\ a\,\left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^2\,b+11\,b^3+6\,a^3\,(c+d\,x)-18\,a\,b^2\,(c+d\,x)\right)\text{Cos}[3\,(c+d\,x)]-\\ \Big(10\,a^8-63\,a^6\,b^2-105\,a^4\,b^4-21\,a^2\,b^6+11\,b^8-36\,a^7\,b\,(c+d\,x)+204\,a^5\,b^3\,(c+d\,x)+36\,a^3\,b^5\,(c+d\,x)-12\,a\,b^7\,(c+d\,x)+\\ \left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^4-11\,b^4-36\,a^3\,b\,(c+d\,x)+12\,a\,b^3\,(c+d\,x)\right)\text{Cos}[2\,(c+d\,x)]\Big)\text{Sin}[c+d\,x]\Big)\Big)\Big)$$

- **Problem 491: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 172 leaves, 5 steps):

$$\frac{4\,a\,b\,\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^4}-\frac{\left(a^4-6\,a^2\,b^2+b^4\right)\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^4 d}+\frac{a}{3\,\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^3}+\frac{a^2-b^2}{2\,\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{a\,\left(a^2-3\,b^2\right)}{\left(a^2+b^2\right)^3 d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 384 leaves):

$$\frac{1}{12\left(a^2+b^2\right)^4 d\,(a+b\,\text{Tan}[c+d\,x])^4}$$

$$\text{Sec}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\Bigg((a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,\Bigg(48\,a\,(a-b)\,b\,(a+b)\,(c+d\,x)-12\,\mathrm{i}\,\left(a^4-6\,a^2\,b^2+b^4\right)\,(c+d\,x)+$$
$$12\,\mathrm{i}\,\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]-6\,\left(a^4-6\,a^2\,b^2+b^4\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]+$$
$$\frac{2\,b\,\left(a^2-b^2\right)\,\left(a^2+b^2\right)^2\,\text{Sin}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-\frac{\left(a^2+b^2\right)\,\left(3\,a^4-16\,a^2\,b^2+b^4\right)}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{44\,b\,\left(-a^4+b^4\right)\,\text{Sin}[c+d\,x]}{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)+$$
$$\left(a^2+b^2\right)^2\,\left(3\,a\,\left(a^2+b^2\right)\,\text{Cos}[c+d\,x]+b\,\left(-4\,a\,b\,\text{Cos}[3\,(c+d\,x)]+\left(5\,a^2+b^2+4\,\left(a^2-b^2\right)\,\text{Cos}[2\,(c+d\,x)]\right)\,\text{Sin}[c+d\,x]\right)\right)\Bigg)$$

- **Problem 492: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 165 leaves, 5 steps):

$$\frac{\left(a^4-6\,a^2\,b^2+b^4\right)\,x}{\left(a^2+b^2\right)^4}+\frac{4\,a\,b\,\left(a^2-b^2\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^4\,d}-$$
$$\frac{b}{3\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^3}-\frac{a\,b}{\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{b\,\left(3\,a^2-b^2\right)}{\left(a^2+b^2\right)^3\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 633 leaves):

$$-\frac{b^3 \left(6 a^2+b^2\right) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{3 a (a-i b)^3 (a+i b)^3 d (a+b \text{Tan}[c+d x])^4}+$$

$$\frac{\left(a^2-2 a b-b^2\right) \left(a^2+2 a b-b^2\right) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{(a-i b)^4 (a+i b)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\left(4 \left(i a^{10} b+a^9 b^2+2 i a^8 b^3+2 a^7 b^4-2 i a^4 b^7-2 a^3 b^8-i a^2 b^9-a b^{10}\right) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\right) /$$

$$\left((a-i b)^8 (a+i b)^7 d (a+b \text{Tan}[c+d x])^4\right)-\frac{4 i \left(a^3 b-a b^3\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{\left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\frac{2 \left(a^3 b-a b^3\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{\left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\frac{2 \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(9 a^2 b^2 \text{Sin}[c+d x]-2 b^4 \text{Sin}[c+d x]\right)}{3 a (a-i b)^3 (a+i b)^3 d (a+b \text{Tan}[c+d x])^4}+$$

$$\frac{b^4 \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \text{Tan}[c+d x]}{3 a (a-i b)^2 (a+i b)^2 d (a+b \text{Tan}[c+d x])^4}$$

- **Problem 493: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]}{(a+b \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 226 leaves, 6 steps):

$$-\frac{4 a b \left(a^2-b^2\right) x}{\left(a^2+b^2\right)^4}+\frac{\text{Log}[\text{Sin}[c+d x]]}{a^4 d}-\frac{b^2 \left(10 a^6+5 a^4 b^2+4 a^2 b^4+b^6\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^4 \left(a^2+b^2\right)^4 d}+$$

$$\frac{b^2}{3 a \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^3}+\frac{b^2 \left(3 a^2+b^2\right)}{2 a^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}+\frac{b^2 \left(6 a^4+3 a^2 b^2+b^4\right)}{a^3 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 790 leaves):

$$\frac{5 b^4 \left(3 a^2+b^2\right) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{6 a^2 (a-i b)^3 (a+i b)^3 d (a+b \text{Tan}[c+d x])^4}-\frac{4 a (a-b) b (a+b) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{(a-i b)^4 (a+i b)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\left(\left(-10 i a^{19} b^2-10 a^{18} b^3-35 i a^{17} b^4-35 a^{16} b^5-49 i a^{15} b^6-49 a^{14} b^7-38 i a^{13} b^8-38 a^{12} b^9-20 i a^{11} b^{10}-20 a^{10} b^{11}-7 i a^9 b^{12}-7 a^8 b^{13}-\right.\right.$$
$$\left.\left.i a^7 b^{14}-a^6 b^{15}\right) (c+d x) \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\right) / \left(a^{10} (a-i b)^8 (a+i b)^7 d (a+b \text{Tan}[c+d x])^4\right)-$$

$$\frac{i \left(-10 a^6 b^2-5 a^4 b^4-4 a^2 b^6-b^8\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{a^4 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\frac{\text{Log}[\text{Sin}[c+d x]] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4}{a^4 d (a+b \text{Tan}[c+d x])^4}+$$

$$\left(\left(-10 a^6 b^2-5 a^4 b^4-4 a^2 b^6-b^8\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\right) /$$
$$\left(2 a^4 \left(a^2+b^2\right)^4 d (a+b \text{Tan}[c+d x])^4\right)+$$

$$\left(\text{Sec}[c+d x]^4 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-30 a^4 b^3 \text{Sin}[c+d x]-11 a^2 b^5 \text{Sin}[c+d x]-3 b^7 \text{Sin}[c+d x]\right)\right) /$$
$$\left(3 a^4 (a-i b)^3 (a+i b)^3 d (a+b \text{Tan}[c+d x])^4\right)-\frac{b^5 \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \text{Tan}[c+d x]}{3 a^2 (a-i b)^2 (a+i b)^2 d (a+b \text{Tan}[c+d x])^4}$$

- **Problem 494: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^2}{(a+b \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 278 leaves, 7 steps):

$$-\frac{\left(a^4-6 a^2 b^2+b^4\right) x}{\left(a^2+b^2\right)^4}-\frac{4 b \text{Log}[\text{Sin}[c+d x]]}{a^5 d}+\frac{4 b^3 \left(5 a^6+6 a^4 b^2+4 a^2 b^4+b^6\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^5 \left(a^2+b^2\right)^4 d}-$$
$$\frac{b \left(3 a^2+4 b^2\right)}{3 a^2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^3}-\frac{\text{Cot}[c+d x]}{a d (a+b \text{Tan}[c+d x])^3}-\frac{b \left(a^4+4 a^2 b^2+2 b^4\right)}{a^3 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}-\frac{b \left(a^6+13 a^4 b^2+12 a^2 b^4+4 b^6\right)}{a^4 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1318 leaves):

$$\left(4\left(5\,\mathrm{i}\,a^{20}b^3+5a^{19}b^4+21\,\mathrm{i}\,a^{18}b^5+21a^{17}b^6+37\,\mathrm{i}\,a^{16}b^7+37a^{15}b^8+36\,\mathrm{i}\,a^{14}b^9+36a^{13}b^{10}+21\,\mathrm{i}\,a^{12}b^{11}+21a^{11}b^{12}+7\,\mathrm{i}\,a^{10}b^{13}+7a^9b^{14}+\mathrm{i}\,a^8b^{15}+a^7b^{16}\right)(c+dx)\,\mathrm{Csc}[c+dx]^4\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4\right)\Big/\left(a^{12}(a-\mathrm{i}\,b)^8(a+\mathrm{i}\,b)^7\,d\,(b+a\,\mathrm{Cot}[c+dx])^4\right)-\frac{4\,\mathrm{i}\left(5a^6b^3+6a^4b^5+4a^2b^7+b^9\right)\mathrm{ArcTan}[\mathrm{Tan}[c+dx]]\,\mathrm{Csc}[c+dx]^4\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}{a^5\left(a^2+b^2\right)^4 d\,(b+a\,\mathrm{Cot}[c+dx])^4}-\frac{4\,b\,\mathrm{Csc}[c+dx]^4\,\mathrm{Log}[\mathrm{Sin}[c+dx]]\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4}{a^5\,d\,(b+a\,\mathrm{Cot}[c+dx])^4}+\left(2\left(5a^6b^3+6a^4b^5+4a^2b^7+b^9\right)\mathrm{Csc}[c+dx]^4\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^2\right](a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])^4\right)\Big/\left(a^5\left(a^2+b^2\right)^4 d\,(b+a\,\mathrm{Cot}[c+dx])^4\right)+\frac{1}{24a^5(a-\mathrm{i}\,b)^4(a+\mathrm{i}\,b)^4 d\,(b+a\,\mathrm{Cot}[c+dx])^4}\mathrm{Csc}[c+dx]^5\,(a\,\mathrm{Cos}[c+dx]+b\,\mathrm{Sin}[c+dx])\Big(-9a^{12}-45a^{10}b^2-45a^8b^4+90a^6b^6+183a^4b^8+111a^2b^{10}+27b^{12}-9a^{11}b(c+dx)+45a^9b^3(c+dx)+45a^7b^5(c+dx)-9a^5b^7(c+dx)-12a^{12}\mathrm{Cos}[2(c+dx)]-48a^{10}b^2\mathrm{Cos}[2(c+dx)]-72a^8b^4\mathrm{Cos}[2(c+dx)]-196a^6b^6\mathrm{Cos}[2(c+dx)]-276a^4b^8\mathrm{Cos}[2(c+dx)]-152a^2b^{10}\mathrm{Cos}[2(c+dx)]-36b^{12}\mathrm{Cos}[2(c+dx)]+12a^9b^3(c+dx)\mathrm{Cos}[2(c+dx)]-72a^7b^5(c+dx)\mathrm{Cos}[2(c+dx)]+12a^5b^7(c+dx)\mathrm{Cos}[2(c+dx)]-3a^{12}\mathrm{Cos}[4(c+dx)]-3a^{10}b^2\mathrm{Cos}[4(c+dx)]-27a^8b^4\mathrm{Cos}[4(c+dx)]+10a^6b^6\mathrm{Cos}[4(c+dx)]+69a^4b^8\mathrm{Cos}[4(c+dx)]+41a^2b^{10}\mathrm{Cos}[4(c+dx)]+9b^{12}\mathrm{Cos}[4(c+dx)]+9a^{11}b(c+dx)\mathrm{Cos}[4(c+dx)]-57a^9b^3(c+dx)\mathrm{Cos}[4(c+dx)]+27a^7b^5(c+dx)\mathrm{Cos}[4(c+dx)]-3a^5b^7(c+dx)\mathrm{Cos}[4(c+dx)]-18a^{11}b\,\mathrm{Sin}[2(c+dx)]-78a^9b^3\mathrm{Sin}[2(c+dx)]+12a^7b^5\mathrm{Sin}[2(c+dx)]+148a^5b^7\mathrm{Sin}[2(c+dx)]+106a^3b^9\mathrm{Sin}[2(c+dx)]+30a\,b^{11}\mathrm{Sin}[2(c+dx)]-6a^{12}(c+dx)\mathrm{Sin}[2(c+dx)]+18a^{10}b^2(c+dx)\mathrm{Sin}[2(c+dx)]+102a^8b^4(c+dx)\mathrm{Sin}[2(c+dx)]-18a^6b^6(c+dx)\mathrm{Sin}[2(c+dx)]-9a^{11}b\,\mathrm{Sin}[4(c+dx)]-33a^9b^3\mathrm{Sin}[4(c+dx)]-132a^7b^5\mathrm{Sin}[4(c+dx)]-172a^5b^7\mathrm{Sin}[4(c+dx)]-79a^3b^9\mathrm{Sin}[4(c+dx)]-15a\,b^{11}\mathrm{Sin}[4(c+dx)]-3a^{12}(c+dx)\mathrm{Sin}[4(c+dx)]+27a^{10}b^2(c+dx)\mathrm{Sin}[4(c+dx)]-57a^8b^4(c+dx)\mathrm{Sin}[4(c+dx)]+9a^6b^6(c+dx)\mathrm{Sin}[4(c+dx)]\Big)$$

- **Problem 495: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{3+5\,\mathrm{Tan}[c+dx]}\,dx$$

Optimal (type 3, 31 leaves, 2 steps):

$$\frac{3x}{34}+\frac{5\,\mathrm{Log}[3\,\mathrm{Cos}[c+dx]+5\,\mathrm{Sin}[c+dx]]}{34d}$$

Result (type 3, 67 leaves):

$$\frac{3\,\mathrm{ArcTan}[\mathrm{Tan}[c+dx]]}{34d}+\frac{5\,\mathrm{Log}[3+5\,\mathrm{Tan}[c+dx]]}{34d}-\frac{5\,\mathrm{Log}\left[34-6\,(3+5\,\mathrm{Tan}[c+dx])+(3+5\,\mathrm{Tan}[c+dx])^2\right]}{68d}$$

- **Problem 499: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{5+3\,\mathrm{Tan}[c+dx]}\,dx$$

Optimal (type 3, 31 leaves, 2 steps):

$$\frac{5x}{34}+\frac{3\,\mathrm{Log}[5\,\mathrm{Cos}[c+dx]+3\,\mathrm{Sin}[c+dx]]}{34d}$$

Result (type 3, 67 leaves):

$$\frac{5\,\text{ArcTan}[\text{Tan}[c+d\,x]]}{34\,d}+\frac{3\,\text{Log}[5+3\,\text{Tan}[c+d\,x]]}{34\,d}-\frac{3\,\text{Log}\left[34-10\,(5+3\,\text{Tan}[c+d\,x])+(5+3\,\text{Tan}[c+d\,x])^2\right]}{68\,d}$$

- **Problem 503: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Tan}[c+d\,x]^4\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 456 leaves, 14 steps):

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{2\,(8\,a^2-35\,b^2)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{105\,b^3\,d}-\frac{8\,a\,\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{35\,b^2\,d}+\frac{2\,\text{Tan}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{7\,b\,d}$$

Result (type 3, 167 leaves):

$$\frac{1}{105\,d}\left(-105\,i\,\sqrt{a-i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]+105\,i\,\sqrt{a+i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]+\right.$$

$$\left.1/b^3 2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\left(8\,a^3-38\,a\,b^2-2\,b\,(2\,a^2+25\,b^2)\,\text{Tan}[c+d\,x]+3\,b^2\,\text{Sec}[c+d\,x]^2\,(a+5\,b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 505: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Tan}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 382 leaves, 12 steps):

$$-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,b\,d}$$

Result (type 3, 113 leaves) :

$$\frac{3\,i\,\sqrt{a-i\,b}\,b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]-3\,i\,\sqrt{a+i\,b}\,b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]+2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,b\,d}$$

- **Problem 507: Result unnecessarily involves imaginary or complex numbers.**

$$\int\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 358 leaves, 11 steps) :

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}$$

Result (type 3, 87 leaves) :

$$-\frac{i\left(\sqrt{a-i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]-\sqrt{a+i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]\right)}{d}$$

- **Problem 508: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 116 leaves, 11 steps) :

$$-\frac{2\,\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{\sqrt{a-i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{\sqrt{a+i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}$$

Result (type 4, 9114 leaves) :

$$-\left(\left(4\,\text{Csc}[c+d\,x]\left(a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a - i\, b)\, \text{EllipticPi}\left[-\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$a\, \text{EllipticPi}\left[\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$i\, b\, \text{EllipticPi}\left[\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] +$$

$$a\, \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right]\Bigg)$$

$$\sqrt{a\, \text{Cos}[c + d\, x] + b\, \text{Sin}[c + d\, x]}\, \sqrt{\frac{b - \sqrt{a^2 + b^2} - a\, \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]}{\left(-a - b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\, \sqrt{-\frac{b + \sqrt{a^2 + b^2} - a\, \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\Bigg) \Big/$$

$$\left(d\, \sqrt{\text{Sec}[c + d\, x]}\, \sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\, \sqrt{a + b\, \text{Tan}[c + d\, x]}\right. \left(\frac{1}{\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d\, x)\right]\right)}}\, (a + b\, \text{Tan}[c + d\, x])^2}\right.$$

$$4\, b \left(a\, \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{a - b - \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -\right.$$

$$(a - i\, b)\, \text{EllipticPi}\left[-\frac{i\left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$a\, \text{EllipticPi}\left[\frac{i\left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$i\, b\, \text{EllipticPi}\left[\frac{i\left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] +$$

$$\left.a\, \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right]\right)\, \text{Sec}[c + d\, x]^{5/2}$$

$$\sqrt{a\, \text{Cos}[c + d\, x] + b\, \text{Sin}[c + d\, x]}\, \sqrt{\frac{b - \sqrt{a^2 + b^2} - a\, \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]}{\left(-a - b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\, \sqrt{-\frac{b + \sqrt{a^2 + b^2} - a\, \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}} -$$

$$\left(2\left(a\, \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{a - b - \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -\right.\right.$$

$$(a - i\, b)\, \text{EllipticPi}\left[-\frac{i\left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$a\, \text{EllipticPi}\left[\frac{i\left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right)\left(1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right)\left(-1 + \text{Tan}\left[\frac{1}{2}(c + d\, x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$i\, b\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ (a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\frac{1}{\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ (a+b\,\text{Tan}[c+d\,x])}$$

$$2\left(a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}+\frac{1}{\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}(a+b\,\text{Tan}[c+d\,x])}$$

$$2\Bigg(a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)-$$

$$\Bigg(2\Bigg(a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\, b\, \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ (a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\Bigg(2\Bigg(a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.a\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ (a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\frac{1}{\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ (a+b\,\text{Tan}[c+d\,x])}\ 4\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(\left(a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(i b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)-$$

$$\Bigg((a-i b)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)+$$

$$\Bigg(a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)\Bigg)\Bigg)\Bigg)\Bigg)$$

- **Problem 509: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^2\sqrt{a+b\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 3, 415 leaves, 16 steps) :

$$-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-\frac{\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 15 174 leaves) :

$$-\frac{\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-\Bigg(2\,\Bigg(b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{b\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(d\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\left(\left(\left(2\left(b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)-$$

$$\Bigg(\Bigg(b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,i\,a\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,b\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,i\,a\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(\Bigg(b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\left(b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,a\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathrm{i}\,a\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,b\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \Bigg(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right) \Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right.$$

$$\left.\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left.\left(\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right) \Big/$$

$$\left(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)+$$

$$\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(i\, a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;-$$

$$\left(i\,a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;-$$

$$\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;+$$

$$\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\right)\right)$$

- **Problem 510: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^3 \sqrt{a+b \operatorname{Tan}[c+d x]}\, dx$$

Optimal (type 3, 189 leaves, 13 steps):

$$\frac{\left(8 a^2+b^2\right)\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{3/2} d}-\frac{\sqrt{a-i b}\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-$$

$$\frac{\sqrt{a+i b}\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{b \operatorname{Cot}[c+d x]\sqrt{a+b \operatorname{Tan}[c+d x]}}{4 a d}-\frac{\operatorname{Cot}[c+d x]^2\sqrt{a+b \operatorname{Tan}[c+d x]}}{2 d}$$

Result (type 4, 17131 leaves):

$$\frac{\left(\frac{1}{2}-\frac{b \operatorname{Cot}[c+d x]}{4 a}-\frac{1}{2}\operatorname{Csc}[c+d x]^2\right)\sqrt{a+b \operatorname{Tan}[c+d x]}}{d}+$$

$$\left(\left(\left(-b^2 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\left(8 a^2+b^2\right)\right.\right.\right.$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 i\, a\, b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 i\, a\, b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-\frac{a\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{b^2\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{8 a\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{a\,\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\right.$$

$$\left.\frac{b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\,\mathrm{Sin}[2\,(c+d\,x)]}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}\,-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}\,-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\left.\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(2\,a\,d\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right.$$

$$\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)$$

$$\left(-\left(\left(\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$\left(8\,a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(2\,a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)+$$

$$\Bigg(\Bigg(-b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(8\,a^2+b^2\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,i\,a\,b\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right)\Big/$$

$$\left(4\,a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(4\,a\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8 a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$8 a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$8 i a b \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$8 a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$8 i a b \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$8 a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$\left. b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(4\,a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(4\,a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(\Bigg(-b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(8\,a^2+b^2\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,i\,a\,b\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left.\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(4 a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8 a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Big/$$

$$\left(4\,a\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a\,b\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(4\,a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\right/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;-$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;-$$

$$\left(4\,i\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;-$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(4\,i\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(\left(8\,a^2+b^2\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\Big/$$

$$\left(2 a \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\right)\right)$$

Problem 511: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^4 (a+b \text{Tan}[c+d x])^{3/2} \, dx$$

Optimal (type 3, 209 leaves, 11 steps):

$$-\frac{i (a-i b)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+\frac{i (a+i b)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}+\frac{2 b \sqrt{a+b \text{Tan}[c+d x]}}{d}+\frac{2\left(8 a^2-63 b^2\right)(a+b \text{Tan}[c+d x])^{5/2}}{315 b^3 d}-\frac{8 a \text{Tan}[c+d x](a+b \text{Tan}[c+d x])^{5/2}}{63 b^2 d}+\frac{2 \text{Tan}[c+d x]^2 (a+b \text{Tan}[c+d x])^{5/2}}{9 b d}$$

Result (type 3, 425 leaves):

$$-\frac{i\left(a^2-b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \text{Cos}[c+d x]^2 (a+b \text{Tan}[c+d x])^2}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}-\frac{2 a b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \text{Cos}[c+d x]^2 (a+b \text{Tan}[c+d x])^2}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\left(\text{Cos}[c+d x](a+b \text{Tan}[c+d x])^{3/2}\left(\frac{2\left(8 a^4-66 a^2 b^2+413 b^4\right)}{315 b^3}+\frac{2\left(3 a^2-133 b^2\right) \text{Sec}[c+d x]^2}{315 b}+\frac{2}{9} b \text{Sec}[c+d x]^4-\frac{8 \text{Sec}[c+d x]\left(a^3 \text{Sin}[c+d x]+44 a b^2 \text{Sin}[c+d x]\right)}{315 b^2}+\frac{20}{63} a \text{Sec}[c+d x]^2 \text{Tan}[c+d x]\right)\right) \Big/ (d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]))$$

Problem 512: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^3 (a+b \text{Tan}[c+d x])^{3/2} \, dx$$

Optimal (type 3, 181 leaves, 12 steps):

$$\frac{(a-\mathrm{i}\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{d}+\frac{(a+\mathrm{i}\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{d}-$$
$$\frac{2\,a\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}-\frac{4\,a\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{35\,b^2\,d}+\frac{2\,\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{7\,b\,d}$$

Result (type 3, 391 leaves) :

$$-\frac{2\,\mathrm{i}\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\frac{\left(a^2-b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^2}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$
$$\left(\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\left(-\frac{4\,a\left(3\,a^2+82\,b^2\right)}{105\,b^2}+\frac{16}{35}\,a\,\text{Sec}[c+d\,x]^2-\right.\right.$$
$$\left.\left.\frac{2\,\text{Sec}[c+d\,x]\left(-3\,a^2\,\text{Sin}[c+d\,x]+50\,b^2\,\text{Sin}[c+d\,x]\right)}{105\,b}+\frac{2}{7}\,b\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\right)$$

- **Problem 513: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 135 leaves, 9 steps) :

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{d}-\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{d}-\frac{2\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{5\,b\,d}$$

Result (type 3, 285 leaves) :

$$\left(\text{Cos}[c+d\,x]^2 \left(5\,i\,(a^2-b^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)(a+b\,\text{Tan}[c+d\,x])^2+\right.\right.$$

$$10\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)(a+b\,\text{Tan}[c+d\,x])^2+$$

$$\left.\left.\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\left(a^2-6\,b^2+b^2\,\text{Sec}[c+d\,x]^2+2\,a\,b\,\text{Tan}[c+d\,x]\right)}{b}\right)\right)\Big/\left(5\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 514: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 128 leaves, 9 steps) :

$$-\frac{(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-\frac{(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{2\,a\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 3, 289 leaves) :

$$\left(\text{Cos}[c+d\,x]\left(2\,i\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2-\right.\right.$$

$$(a^2-b^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2+$$

$$\left.\left.\frac{2}{3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(4\,a+b\,\text{Tan}[c+d\,x])\right)\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 515: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 111 leaves, 8 steps) :

$$-\frac{i\,(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{i\,(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{2\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 3, 276 leaves) :

$$\Bigg(\text{Cos}[c+d\,x]\,\Bigg(2\,b\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}-$$
$$i\,(a^2-b^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2-$$
$$2\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^2\Bigg)\Bigg)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

- **Problem 516: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 116 leaves, 11 steps) :

$$-\frac{2\,a^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}$$

Result (type 4, 18 508 leaves) :

$$-\left(\left(4\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$
$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$
$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}}+b\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\,(a+b \operatorname{Tan}[c+d x])^{3/2}\right) \Big/$$

$$\left(d \operatorname{Sec}[c+d x]^{3/2}\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^{3/2}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)$$

$$\left(\left(\left(4\left(-b^2 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$a^2 \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a b \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2 \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)-$$

$$\left(2\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(2\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2 \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a b \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(2\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(2\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(4\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/\right.$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\left(\mathrm{i}\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)+$$

$$\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(\mathbb{i}\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)\right)\right)\right)$$

Problem 517: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 149 leaves, 12 steps):

$$-\frac{3\sqrt{a}\,b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{i\,(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-\frac{i\,(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}-\frac{a\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 18711 leaves):

$$-\frac{a\,\text{Cos}[c+d\,x]\,\text{Cot}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}-\left(2\left(a\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(\frac{a\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\left.\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)\Bigg/$$

$$\left(d\,\mathrm{Sec}[c+d\,x]^{3/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(\left(2\left(a\,b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$3\,a\,b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\right)-$$

$$\left(\left(a b \,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$3 a b \,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2 i a^2 \,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4 a b \,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i b^2 \,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a^2 \,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4 a b \,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(a\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,a^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathrm{i}\,a^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(a\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left.\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(a\,b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$3\,a\,b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,i\,a^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$4\,a\,b\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,i\,b^2\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,i\,a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$4\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,i\,b^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(\Bigg(a\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,b^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\left(a\,b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$3\,a\,b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathbb{i}\,b^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathbb{i}\,a^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4\,a\,b\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathbb{i}\,b^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$3\,a\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(\left(a b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$3 a b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2 i a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4 a b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i b^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$4 a b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,b^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$3\,a\,b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\Bigg(\Bigg(a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\;\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\;\Bigg)+$$

$$\Bigg(3\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\;\Bigg)+$$

$$\Bigg(i\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\Bigg(2\,a\,b\Bigg(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\Bigg(i\,b^2\Bigg(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\Bigg)\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\left(i\, a^2 \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(2\, a\, b \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(i\, b^2 \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right) \Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ +$$

$$\left(3\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\right)\right)$$

- **Problem 518: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 189 leaves, 13 steps):

$$\frac{\left(8\,a^2-3\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\sqrt{a}\,d}-\frac{(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-$$

$$\frac{(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}-\frac{5\,b\,\text{Cot}[c+d\,x]\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,d}-\frac{a\,\text{Cot}[c+d\,x]^2\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,d}$$

Result (type 4, 20 475 leaves): Display of huge result suppressed!

Problem 519: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^3 \,(a+b\,\text{Tan}[c+d x])^{5/2}\,dx$$

Optimal (type 3, 211 leaves, 13 steps):

$$\frac{(a-i b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+\frac{(a+i b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{2\left(a^2-b^2\right)\sqrt{a+b\,\text{Tan}[c+d x]}}{d}-\frac{2 a\,(a+b\,\text{Tan}[c+d x])^{3/2}}{3 d}-\frac{2\,(a+b\,\text{Tan}[c+d x])^{5/2}}{5 d}-\frac{4 a\,(a+b\,\text{Tan}[c+d x])^{7/2}}{63 b^2 d}+\frac{2\,\text{Tan}[c+d x]\,(a+b\,\text{Tan}[c+d x])^{7/2}}{9 b d}$$

Result (type 3, 436 leaves):

$$\frac{i\left(-3 a^2 b+b^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\text{Cos}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^3}{d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}+$$

$$\frac{\left(a^3-3 a b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\text{Cos}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^3}{d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3}+$$

$$\left(\text{Cos}[c+d x]^2\,(a+b\,\text{Tan}[c+d x])^{5/2}\left(-\frac{2\left(10 a^4+558 a^2 b^2-413 b^4\right)}{315 b^2}+\frac{2}{315}\left(75 a^2-133 b^2\right)\text{Sec}[c+d x]^2+\frac{2}{9} b^2\,\text{Sec}[c+d x]^4+\right.\right.$$
$$\left.\left.\frac{2\,\text{Sec}[c+d x]\left(5 a^3\,\text{Sin}[c+d x]-326 a b^2\,\text{Sin}[c+d x]\right)}{315 b}+\frac{38}{63} a b\,\text{Sec}[c+d x]^2\,\text{Tan}[c+d x]\right)\right)\Big/\left(d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right)$$

Problem 520: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^2 \,(a+b\,\text{Tan}[c+d x])^{5/2}\,dx$$

Optimal (type 3, 158 leaves, 10 steps):

$$\frac{i\,(a-i b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{i\,(a+i b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{4 a b\sqrt{a+b\,\text{Tan}[c+d x]}}{d}-\frac{2 b\,(a+b\,\text{Tan}[c+d x])^{3/2}}{3 d}+\frac{2\,(a+b\,\text{Tan}[c+d x])^{7/2}}{7 b d}$$

Result (type 3, 404 leaves):

$$\frac{i\left(a^3-3ab^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\left(3a^2b-b^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\left(\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\left(\frac{2a\left(3a^2-58b^2\right)}{21\,b}+\frac{6}{7}a\,b\,\text{Sec}[c+d\,x]^2+\frac{2}{21}\text{Sec}[c+d\,x]\left(9a^2\,\text{Sin}[c+d\,x]-10b^2\,\text{Sin}[c+d\,x]\right)+\frac{2}{7}b^2\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

Problem 521: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 158 leaves, 10 steps) :

$$-\frac{(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-\frac{(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{2\left(a^2-b^2\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2a\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{5\,d}$$

Result (type 3, 358 leaves) :

$$-\frac{i\left(-3a^2b+b^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}-$$

$$\frac{\left(a^3-3ab^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^3}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}+$$

$$\frac{\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\left(\frac{2}{15}\left(23a^2-18b^2\right)+\frac{2}{5}b^2\,\text{Sec}[c+d\,x]^2+\frac{22}{15}a\,b\,\text{Tan}[c+d\,x]\right)}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

- **Problem 522: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 134 leaves, 9 steps):

$$-\frac{i\,(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{i\,(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{4\,a\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2\,b\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 3, 303 leaves):

$$\frac{1}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}\left(\text{Cos}[c+d\,x]^2\left(-i\,\left(a^3-3\,a\,b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^3-\left(3\,a^2\,b-b^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^3+\frac{2}{3}\,b\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(7\,a+b\,\text{Tan}[c+d\,x])\right)\right)$$

- **Problem 523: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 138 leaves, 12 steps):

$$-\frac{2\,a^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{2\,b^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 22 189 leaves): Display of huge result suppressed!

- **Problem 524: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 151 leaves, 12 steps):

$$-\frac{5\,a^{3/2}\,b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{i\,(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-\frac{i\,(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}-\frac{a^2\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 22 262 leaves) : Display of huge result suppressed !

- **Problem 525: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 192 leaves, 13 steps) :

$$\frac{\sqrt{a}\,\left(8\,a^2-15\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,d}-\frac{(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}-\frac{(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}-\frac{9\,a\,b\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,d}-\frac{a^2\,\text{Cot}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,d}$$

Result (type 4, 23 938 leaves) : Display of huge result suppressed !

- **Problem 526: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 237 leaves, 14 steps) :

$$\frac{5\,b\,\left(8\,a^2-b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{8\,\sqrt{a}\,d}-\frac{i\,(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{i\,(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+\frac{\left(8\,a^2-11\,b^2\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{8\,d}-\frac{13\,a\,b\,\text{Cot}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{12\,d}-\frac{a^2\,\text{Cot}[c+d\,x]^3\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 24 036 leaves) : Display of huge result suppressed !

- **Problem 527: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[c+d\,x])^{7/2}\,dx$$

Optimal (type 3, 167 leaves, 10 steps) :

$$-\frac{i\,(a-i\,b)^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{i\,(a+i\,b)^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+$$
$$\frac{2\,b\,\left(3\,a^2-b^2\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{4\,a\,b\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}+\frac{2\,b\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{5\,d}$$

Result (type 3, 369 leaves) :

$$-\frac{i\,\left(a^4-6\,a^2\,b^2+b^4\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}-$$
$$\frac{\left(4\,a^3\,b-4\,a\,b^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^4}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}+$$
$$\frac{\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{7/2}\left(\frac{4}{15}\,b\,\left(29\,a^2-9\,b^2\right)+\frac{2}{5}\,b^3\,\text{Sec}[c+d\,x]^2+\frac{32}{15}\,a\,b^2\,\text{Tan}[c+d\,x]\right)}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3}$$

- **Problem 529: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d\,x]^4}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 500 leaves, 14 steps) :

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{2\,(8\,a^2-15\,b^2)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,b^3\,d}-\frac{8\,a\,\text{Tan}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,b^2\,d}+\frac{2\,\text{Tan}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,b\,d}$$

Result (type 3, 144 leaves):

$$\frac{-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}+\frac{2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\left(8\,a^2-18\,b^2+3\,b^2\,\text{Sec}[c+d\,x]^2-4\,a\,b\,\text{Tan}[c+d\,x]\right)}{15\,b^3}}{d}$$

- **Problem 531: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d\,x]^2}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 424 leaves, 12 steps):

$$-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+\frac{2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b\,d}$$

Result (type 3, 108 leaves) :

$$\frac{\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}+\frac{2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b}}{d}$$

Problem 533: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{1}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 402 leaves, 11 steps) :

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}-\sqrt{2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\sqrt{a^2+b^2}\sqrt{a-\sqrt{a^2+b^2}}\;d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}+\sqrt{2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\sqrt{a^2+b^2}\sqrt{a-\sqrt{a^2+b^2}}\;d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\sqrt{a^2+b^2}\sqrt{a+\sqrt{a^2+b^2}}\;d}+$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\sqrt{a^2+b^2}\sqrt{a+\sqrt{a^2+b^2}}\;d}$$

Result (type 3, 87 leaves) :

$$-\frac{i\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)}{d}$$

Problem 534: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 116 leaves, 11 steps) :

$$-\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\;d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\;d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}\;d}$$

Result (type 4, 9461 leaves) :

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\text{Sec}[c+d x]\left(\frac{\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg/$$

$$\left(d\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\left(\frac{1}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}}\right.$$

$$2\left(\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ +$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\ -$$

$$\frac{1}{(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}}$$

$$2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\Bigg(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}-\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}+\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}-\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)^{3/2}}$$

$$2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\text{EllipticPi}\left[\right.$$

$$\left.\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)+$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\text{Sec}[c+d x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\Bigg(2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\Bigg(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\text{Sec}[c+d x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}}4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\text{Sec}[c+d x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Big/\right.$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\right.$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\,\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Bigg/\left(2\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right.$$

$$\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)\,\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\left.\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\,\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 535: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^2}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 461 leaves, 17 steps) :

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{3/2}\,d}-\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-\frac{\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{a\,d}$$

Result (type 4, 11 994 leaves) :

$$-\frac{\text{Csc}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\Bigg(2\,\Bigg(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\left(-\frac{b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\,a\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[2\,(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\,d\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(-\left(\left(2\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,a\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\Bigg(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\Bigg)\Bigg)+$$

$$\Bigg(\Bigg(-b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,\mathrm{i}\,a\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,a\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left.\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)^{3/2}\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(-b \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$b \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 \mathbb{i} a \text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2 \mathbb{i} a \text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(-b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathbb{i}\,a\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathbb{i}\,a\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left(-2\, b\, \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(2\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\Bigg(-\Bigg(b\Bigg(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\Bigg)\Bigg)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Bigg)+$$

$$\Bigg(b\Bigg(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\Bigg)\Bigg)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\Bigg)$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(i\,a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(i\,a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\Bigg)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\Bigg)$$

- **Problem 536: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^3}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 194 leaves, 14 steps):

$$\frac{\left(8\,a^2-3\,b^2\right)\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,a^{5/2}\,d}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\,d}-$$

$$\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}\,d}+\frac{3\,b\,\mathrm{Cot}[c+d\,x]\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{4\,a^2\,d}-\frac{\mathrm{Cot}[c+d\,x]^2\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{2\,a\,d}$$

Result (type 4, 13 850 leaves):

$$\frac{\left(\frac{1}{2\,a}+\frac{3\,b\,\mathrm{Cot}[c+d\,x]}{4\,a^2}-\frac{\mathrm{Csc}[c+d\,x]^2}{2\,a}\right)\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{d\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+$$

$$\left(\left(3\,b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8 a^2-3 b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3 b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \left(-\frac{\text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{3 b^2 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}}{8 a^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\right.$$

$$\left.\frac{\text{Cos}[2 (c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\left.\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2} (c+d x)\right]-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}}\right)\Bigg/$$

$$\left(2 a^2 d \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \left(-2 b \text{Tan}\left[\frac{1}{2} (c+d x)\right]+a \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)\right)\right.$$

$$\left(-\left(\left(\left(3 b^2 \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$\left(8 a^2-3 b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3 b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Bigg/$$

$$\left(2\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)\Bigg)+$$

$$\Bigg(\Bigg(3\,b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2-3\,b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(3\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2-3\,b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(3\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8 a^2-3 b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3 b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2} (c+d x)\right]-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)\Bigg) \Big/$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(3\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2-3\,b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(4 a^2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(3 b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8 a^2-3 b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(\Bigg(3\,b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8 a^2-3 b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$8 a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$8 a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$8 a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3 b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2} (c+d x)\right]-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{1-\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \text{Tan}\left[\frac{1}{2} (c+d x)\right] \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)^2}\right)\Bigg) \Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(3\,b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2-3\,b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3\,b^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(4 a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right.$$

$$\left.\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(\left(3 b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\Bigg)+$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(3\,b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\mathrm{i}\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg) -$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathrm{i}\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg) +$$

$$\left(\left(8\,a^2-3\,b^2\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\Bigg)\Bigg/$$

$$\left.\left.\left(2 a^2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\right) \sqrt{a+b \operatorname{Tan}[c+d x]}\right)$$

Problem 538: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Tan}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 226 leaves, 10 steps):

$$-\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}+\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}-\frac{2 a^2 \operatorname{Tan}[c+d x]^2}{b\left(a^2+b^2\right) d \sqrt{a+b \operatorname{Tan}[c+d x]}}-\frac{2 a\left(8 a^2+5 b^2\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{3 b^3\left(a^2+b^2\right) d}+\frac{2\left(4 a^2+b^2\right) \operatorname{Tan}[c+d x] \sqrt{a+b \operatorname{Tan}[c+d x]}}{3 b^2\left(a^2+b^2\right) d}$$

Result (type 3, 472 leaves):

$$\frac{1}{d (a+b \operatorname{Tan}[c+d x])^{3/2}} \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\left(-\frac{2 a\left(8 a^2+5 b^2\right)}{3(a-i b)(a+i b) b^3}+\frac{2 a^3 \operatorname{Sin}[c+d x]}{(a-i b)(a+i b) b^2(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}+\frac{2 \operatorname{Tan}[c+d x]}{3 b^2}\right)+$$

$$\left(\operatorname{Sec}[c+d x]^{3/2}(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^{3/2}\left(-\frac{i a\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\right.\right.$$

$$\left.\left.\frac{b\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\right)\right) \Big/ \left((a-i b)(a+i b) d (a+b \operatorname{Tan}[c+d x])^{3/2}\right)$$

- **Problem 543: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 150 leaves, 12 steps):

$$-\frac{2 \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{3/2} d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}+\frac{2 b^2}{a \left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 17 416 leaves):

$$\frac{\text{Sec}[c+d x]^2 \, (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(\frac{2 b^2}{a^2 (a-i b) (a+i b)}-\frac{2 b^3 \text{Sin}[c+d x]}{a^2 (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)}{d \, (a+b \text{Tan}[c+d x])^{3/2}}-$$

$$\Bigg(4 \Bigg(-b^2 \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i a b \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\, a\, b\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\left(\frac{a\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{a\,(a-i\,b)\,(a+i\,b)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]}{2\,(a-i\,b)\,(a+i\,b)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\,d\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)$$

$$\Bigg(\Bigg(4\,\Bigg(-b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(a^2+b^2\right)\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\text{EllipticPi}\Big[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$i\,a\,b\,\text{EllipticPi}\Big[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\text{EllipticPi}\Big[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$i\,a\,b\,\text{EllipticPi}\Big[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\right)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathrm{i}\, a\, b\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\, \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\,\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$i\, a\, b\, \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$i\, a\, b\, \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a\,(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\left(-2\,b\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(2\left(-b^2\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(a^2+b^2\right)\operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\operatorname{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathbb{i}\,a\,b\operatorname{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\operatorname{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathrm{i}\, a\, b\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\, a\, b\, \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\, a\, b\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg) \Big/$$

$$\left(a(a-\mathrm{i}\, b)(a+\mathrm{i}\, b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2 \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{i}\, a b \text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(a\,(a-i\,b)\,(a+i\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right) -$$

$$\left(2\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,a\,b\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(a(a-\mathbb{i} b)(a+\mathbb{i} b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(2\Bigg(-b^2 \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\, a\, b\, \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\, a\, b\, \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(\frac{b \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2-a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}-\right.$$

$$\left.\left.\frac{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right) \Big/$$

$$\left(a (a-i b)(a+i b) \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right.$$

$$\left.\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(4\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right) \Big/$$

$$\left(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$
\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;+
$$

$$
\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/
$$

$$
\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.
$$

$$
\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+
$$

$$
\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/
$$

$$
\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.
$$

$$
\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-
$$

$$
\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/
$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(i\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(i\, a\, b \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)} - \frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right) \Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right) +$$

$$\left(\left(a^2+b^2\right) \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)} - \frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right) \Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\right)\Big/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right) (a+$$

$$\left. b\,\text{Tan}[c+d\,x])^{3/2}\right)$$

Problem 544: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 192 leaves, 13 steps):

$$\frac{3 b \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{5/2} d}+\frac{i \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}-\frac{i \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}-\frac{b \left(a^2+3 b^2\right)}{a^2 \left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}-\frac{\text{Cot}[c+d x]}{a d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 17 556 leaves):

$$\frac{\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-\frac{2 b^3}{a^3 \left(a^2+b^2\right)}-\frac{\text{Cot}[c+d x]}{a^2}+\frac{2 b^4 \text{Sin}[c+d x]}{a^3 (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)}{d (a+b \text{Tan}[c+d x])^{3/2}}-$$

$$\Bigg(2 \Bigg(b \left(a^2+3 b^2\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3 b \left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2 i a^3 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a^2 b \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a^3 \text{EllipticPi}\left[\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a^2 b \,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3 a^2 b \,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3 b^3 \,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d x]^{3/2}\,(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^{3/2}\left(-\frac{b \,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{(a-i b)(a+i b)\sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}} -\right.$$

$$\frac{3 b^3 \,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2 a^2 (a-i b)(a+i b)\sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}} - \frac{b \,\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2(a-i b)(a+i b)\sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}} -$$

$$\left.\frac{a \,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\;\text{Sin}[2(c+d x)]}{2(a-i b)(a+i b)\sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right) \Big/$$

$$\left(a^2 (a-i b)(a+i b)\, d\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right.$$

$$\left(\left(\left(2\left(b\left(a^2+3b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.$$

$$3b\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^3\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^3\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,a^2\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3\,b^3\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg)\Big/$$

$$\left(a^2(a-\mathbb{i}\,b)(a+\mathbb{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\right)-$$

$$\Bigg(\Bigg(b\left(a^2+3\,b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathbb{i}\,a^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathbb{i}\,a^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a^2 b \,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3 a^2 b \,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3 b^3 \,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg) \Big/$$

$$\left(a^2 (a-i b)(a+i b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right) -$$

$$\Bigg(\Bigg(b\left(a^2+3 b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3\,b\,\left(a^2+b^2\right)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^3\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^3\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,a^2\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b^3\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{\frac{b-\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b\left(a^2+3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b\left(a^2+b^2\right)\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,\mathrm{i}\,a^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,\mathrm{i}\,a^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,a^2\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b^3\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(a^2\,(a-i\,b)\,(a+i\,b)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(b\left(a^2+3\,b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b\,\left(a^2+b^2\right)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^3\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^3\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,a^2\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3\,b^3\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg) \Bigg/$$

$$\left(a^2 (a-\mathrm{i} b)(a+\mathrm{i} b) \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{b-\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right) -$$

$$\left(\left(b\left(a^2+3 b^2\right) \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$3 b\left(a^2+b^2\right) \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2 \mathrm{i} a^3 \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a^2 b \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^3\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,a^2\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$3\,a^2\,b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$3\,b^3\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(a^2\,(a-i\,b)\,(a+i\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\Bigg) -$$

$$\Bigg(\Bigg(b\left(a^2+3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3\,b\left(a^2+b^2\right)\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$2\,i\,a^3\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$2\,a^2\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$2\,i\,a^3\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$2\,a^2\,b\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3\,a^2\,b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$3\, b^3\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(a^2\,(a-i\,b)\,(a+i\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(\Bigg(b\left(a^2+3\,b^2\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\, \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,b\,\left(a^2+b^2\right)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a^3\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[-\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a^3\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a^2\,b\,\text{EllipticPi}\left[\frac{i\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,a^2\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.3\,b^3\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}}\left(\frac{b\operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2-a\operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}-\right.$$

$$\left.\frac{\operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\left(a+2b\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)}{\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\left(a^2(a-\mathrm{i}\,b)(a+\mathrm{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\sqrt{\frac{a+2b\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}}\right.$$

$$\left.\left(-2b\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2\right)\right)\right)-$$

$$\left(2\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}}\sqrt{\frac{a+2b\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^2}}$$

$$\left(\left(b\left(a^2+3b^2\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+dx)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right.$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\left(3\,a^2\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(3\,b^3\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(\mathrm{i}\,a^3\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(a^2 b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$\left(\mathbb{i}\, a^3\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{\mathbb{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\Bigg(a^2\, b \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)} - \frac{\left(-a+b+\sqrt{a^2+b^2}\right) \mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg) \Big/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(1+\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg) -$$

$$\Bigg(3\, b \left(a^2+b^2\right) \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)} - \frac{\left(-a+b+\sqrt{a^2+b^2}\right) \mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg) \Big/$$

$$\Bigg(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)\Bigg)\Bigg) \Big/$$

$$\Bigg(a^2 (a-i\,b)(a+i\,b) \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}} \left(-2\, b\, \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)\Bigg) (a+$$

$$b\, \mathrm{Tan}[c+d\,x])^{3/2}\Bigg)$$

Problem 545: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^3}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 241 leaves, 14 steps):

$$\frac{\left(8 a^2-15 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{7/2} d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}+$$
$$\frac{b^2 \left(7 a^2+15 b^2\right)}{4 a^3 \left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}+\frac{5 b \text{Cot}[c+d x]}{4 a^2 d \sqrt{a+b \text{Tan}[c+d x]}}-\frac{\text{Cot}[c+d x]^2}{2 a d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 19454 leaves):

$$\frac{1}{d (a+b \text{Tan}[c+d x])^{3/2}} \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2$$
$$\left(\frac{a^4+a^2 b^2+4 b^4}{2 a^4 (a-i b) (a+i b)}+\frac{7 b \text{Cot}[c+d x]}{4 a^3}-\frac{\text{Csc}[c+d x]^2}{2 a^2}-\frac{2 b^5 \text{Sin}[c+d x]}{a^4 (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)+$$
$$\Bigg(\Bigg(b^2 \left(7 a^2+15 b^2\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$
$$\left(8 a^4-7 a^2 b^2-15 b^4\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$
$$8 a^4 \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$
$$8 i a^3 b \text{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,a^4\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$7\,a^2\,b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$15\,b^4\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\text{Sec}[c+d\,x]^{3/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\left(-\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\frac{7\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}}{8\,a\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{15\,b^4\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}}{8\,a^3\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(2\,a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(-\left(\left(\left(\left(b^2\left(7\,a^2+15\,b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\;\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.\right.$$

$$\left(8\,a^4-7\,a^2\,b^2-15\,b^4\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\;\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\;\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\;\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\;\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,\mathrm{i}\,a^3\,b\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\;\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\;\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\;\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\;\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7\,a^2\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.15\,b^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\bigg/$$

$$\left(2\,a^3\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)\right)+$$

$$\Bigg(\Bigg(b^2\left(7a^2+15b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8a^4-7a^2b^2-15b^4\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8a^4\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^3b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8a^4\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^3b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8a^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7a^2b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+dx)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$15\,b^4\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\left(4\,a^3\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b^2\left(7\,a^2+15\,b^2\right)\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(8\,a^4-7\,a^2\,b^2-15\,b^4\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^4\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,\mathrm{i}\,a^3\,b\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,\mathrm{i}\,a^3\,b\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^4\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7\,a^2\,b^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.15\,b^4\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(4 a^3 (a - i b) (a + i b) \sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}} \left(-2 b \text{Tan}\left[\frac{1}{2} (c + d x)\right] + a \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]^2\right)\right)\right) -$$

$$\left(\left(b^2 \left(7 a^2 + 15 b^2\right) \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] +\right.\right.$$

$$\left(8 a^4 - 7 a^2 b^2 - 15 b^4\right) \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{a - b - \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$8 a^4 \text{EllipticPi}\left[-\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$8 i a^3 b \text{EllipticPi}\left[-\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$8 a^4 \text{EllipticPi}\left[\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] +$$

$$8 i a^3 b \text{EllipticPi}\left[\frac{i \left(a + b + \sqrt{a^2 + b^2}\right)}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] +$$

$$8 a^4 \text{EllipticPi}\left[\frac{a + b + \sqrt{a^2 + b^2}}{-a + b + \sqrt{a^2 + b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a + b + \sqrt{a^2 + b^2}\right) \left(1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}{\left(a + b + \sqrt{a^2 + b^2}\right) \left(-1 + \text{Tan}\left[\frac{1}{2} (c + d x)\right]\right)}}\right], \frac{a + \sqrt{a^2 + b^2}}{a - \sqrt{a^2 + b^2}}\right] -$$

$$7\,a^2\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$15\,b^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\left(4\,a^3\,(a-i\,b)\,(a+i\,b)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b^2\left(7\,a^2+15\,b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^4-7\,a^2\,b^2-15\,b^4\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7\,a^2\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$15\,b^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(4\,a^3\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(b^2\left(7\,a^2+15\,b^2\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^4-7\,a^2\,b^2-15\,b^4\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^3\,b\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$8\,a^4\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$7\,a^2\,b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$15\,b^4\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\left(4\,a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(b^2\left(7\,a^2+15\,b^2\right)\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^4-7\,a^2\,b^2-15\,b^4\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,\mathrm{i}\,a^3\,b\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^4\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^3\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7\,a^2\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$15\,b^4\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(4\,a^3\,(a-i\,b)\,(a+i\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-2\, b \operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]^2\right)\right)\Bigg) +$$

$$\Bigg(\Bigg(b^2\left(7 a^2+15 b^2\right) \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8 a^4-7 a^2 b^2-15 b^4\right) \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^4 \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\, i\, a^3 b \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8 a^4 \operatorname{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\, i\, a^3 b \operatorname{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8 a^4 \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\, x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$7 a^2 b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$15 b^4 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg) \left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \left(\frac{b \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 - a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2} -\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right) \Big/$$

$$\left(4 a^3 (a-\mathbb{i} b)(a+\mathbb{i} b) \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right.$$

$$\left.\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right) +$$

$$\left(\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\Bigg(\Bigg(b^2\,\left(7\,a^2+15\,b^2\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(2\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Bigg)+$$

$$\Bigg(4\,a^4\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\Bigg)-$$

$$\Bigg(7\,a^2\,b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(15\,b^4\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,a^4\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(4\,i\,a^3\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,a^4\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,i\,a^3\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)+$$

$$\Bigg(\left(8 a^4-7 a^2 b^2-15 b^4\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(2 a^3(a-i b)(a+i b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\Bigg)\Bigg)(a+$$

$$b \operatorname{Tan}[c+d x])^{3/2}\Bigg)$$

■ **Problem 547: Result more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c+d x]^4}{(a+b \operatorname{Tan}[c+d x])^{5/2}}\, dx$$

Optimal (type 3, 226 leaves, 10 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}-$$

$$\frac{2\,a^2\,\text{Tan}[c+d\,x]^2}{3\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{4\,a^3\,\left(2\,a^2+5\,b^2\right)}{3\,b^3\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{2\,\left(4\,a^2+3\,b^2\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,b^3\,\left(a^2+b^2\right)\,d}$$

Result (type 3, 541 leaves):

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(\frac{2\,\left(8\,a^4+18\,a^2\,b^2+3\,b^4\right)}{3\,(a-i\,b)^2\,(a+i\,b)^2\,b^3}-\frac{2\,a^4}{3\,(a-i\,b)^2\,(a+i\,b)^2\,b\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{8\,\left(a^4\,\text{Sin}[c+d\,x]+3\,a^2\,b^2\,\text{Sin}[c+d\,x]\right)}{3\,(a-i\,b)^2\,(a+i\,b)^2\,b^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)+$$

$$\left(\text{Sec}[c+d\,x]^{5/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{5/2}\left(-\frac{i\,\left(a^2-b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.\right.$$

$$\left.\left.\frac{2\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-i\,b)^2\,(a+i\,b)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 548: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^3}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 172 leaves, 9 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}-\frac{2\,a^2\,\text{Tan}[c+d\,x]}{3\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{4\,a^2\,\left(a^2+4\,b^2\right)}{3\,b^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 530 leaves):

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(-\frac{2\,a\,\left(2\,a^2+9\,b^2\right)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2}+\frac{2\,a^3}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{2\,\left(a^3\,\mathrm{Sin}[c+d\,x]+9\,a\,b^2\,\mathrm{Sin}[c+d\,x]\right)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)-$$

$$\left(\mathrm{Sec}[c+d\,x]^{5/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}\left(-\frac{2\,\mathrm{i}\,a\,b\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{\left(a^2-b^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

Problem 549: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Tan}[c+d\,x]^2}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 157 leaves, 9 steps):

$$\frac{\mathrm{i}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}-\frac{\mathrm{i}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}-\frac{2\,a^2}{3\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{4\,a\,b}{\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 524 leaves):

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\,(a^2-6\,b^2)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b}-\frac{2\,a^2\,b}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{4\,(a^2\,\mathrm{Sin}[c+d\,x]-3\,b^2\,\mathrm{Sin}[c+d\,x])}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)-$$

$$\left(\mathrm{Sec}[c+d\,x]^{5/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}\left(-\frac{\mathrm{i}\,(a^2-b^2)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.\right.$$

$$\left.\left.\frac{2\,a\,b\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 550: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 155 leaves, 9 steps) :

$$-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}+\frac{2\,a}{3\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,(a^2-b^2)}{(a^2+b^2)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 530 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{2\left(4\,a^2-3\,b^2\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,a\,b^2}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{2\left(5\,a^2\,b\,\mathrm{Sin}[c+d\,x]-3\,b^3\,\mathrm{Sin}[c+d\,x]\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$
$$\left(\mathrm{Sec}[c+d\,x]^{5/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}\left(-\frac{2\,i\,a\,b\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.\right.$$
$$\left.\left.\frac{\left(a^2-b^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-i\,b)^2\,(a+i\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

Problem 551: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 152 leaves, 9 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}-\frac{2\,b}{3\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{4\,a\,b}{\left(a^2+b^2\right)^2 d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 498 leaves):

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{14\,b}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{2\,b^3}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{16\,b^2\,\mathrm{Sin}[c+d\,x]}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$
$$\left(\mathrm{Sec}[c+d\,x]^{5/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}\left(-\frac{\mathrm{i}\,\left(a^2-b^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.\right.$$
$$\left.\left.\frac{2\,a\,b\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 552: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 195 leaves, 13 steps):

$$-\frac{2\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,d}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}+$$
$$\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}+\frac{2\,b^2}{3\,a\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,b^2\,\left(3\,a^2+b^2\right)}{a^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 22 634 leaves): Display of huge result suppressed!

- **Problem 553: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^2}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 245 leaves, 14 steps):

$$\frac{5\,b\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{7/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}-$$

$$\frac{b\,\left(3\,a^2+5\,b^2\right)}{3\,a^2\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{\text{Cot}[c+d\,x]}{a\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{b\,\left(a^4+10\,a^2\,b^2+5\,b^4\right)}{a^3\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 22 800 leaves) : Display of huge result suppressed!

Problem 554: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b\,\text{Tan}[c+d\,x])^{7/2}}\,dx$$

Optimal (type 3, 194 leaves, 10 steps) :

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{7/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{7/2}\,d}-$$

$$\frac{2\,b}{5\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}-\frac{4\,a\,b}{3\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\,\left(3\,a^2-b^2\right)}{\left(a^2+b^2\right)^3\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 608 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{7/2}}$$

$$\mathrm{Sec}[c+d\,x]^4\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\left(-\frac{4\,b\,(29\,a^2-9\,b^2)}{15\,a\,(a-i\,b)^3\,(a+i\,b)^3}+\frac{2\,b^4\,\mathrm{Sin}[c+d\,x]}{5\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{2\,b^3\,(19\,a^2+3\,b^2)}{15\,a\,(a-i\,b)^3\,(a+i\,b)^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{4\,(37\,a^2\,b^2\,\mathrm{Sin}[c+d\,x]-9\,b^4\,\mathrm{Sin}[c+d\,x])}{15\,a\,(a-i\,b)^3\,(a+i\,b)^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$

$$\left(\mathrm{Sec}[c+d\,x]^{7/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{7/2}\left(-\frac{i\,(a^3-3\,a\,b^2)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{(-3\,a^2\,b+b^3)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/\left((a-i\,b)^3\,(a+i\,b)^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{7/2}\right)$$

- **Problem 591: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{9/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 399 leaves, 17 steps):

$$-\frac{(a^2+2\,a\,b-b^2)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{\sqrt{2}\,(a^2+b^2)^2\,d}+\frac{(a^2+2\,a\,b-b^2)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{\sqrt{2}\,(a^2+b^2)^2\,d}+\frac{a^{7/2}\,(5\,a^2+9\,b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{b^{7/2}\,(a^2+b^2)^2\,d}+\frac{(a^2-2\,a\,b-b^2)\,\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,(a^2+b^2)^2\,d}-\frac{(a^2-2\,a\,b-b^2)\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,(a^2+b^2)^2\,d}-\frac{a\,(5\,a^2+4\,b^2)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{b^3\,(a^2+b^2)\,d}+\frac{(5\,a^2+2\,b^2)\,\mathrm{Tan}[c+d\,x]^{3/2}}{3\,b^2\,(a^2+b^2)\,d}-\frac{a^2\,\mathrm{Tan}[c+d\,x]^{5/2}}{b\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 796 leaves):

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^2}\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\sqrt{\text{Tan}[c+d\,x]}$$
$$\left(-\frac{a\,(5\,a^2+4\,b^2)}{(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\,b^3}+\frac{a^3\,\text{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\,b^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}+\frac{2\,\text{Tan}[c+d\,x]}{3\,b^2}\right)+$$
$$\frac{1}{2\,(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\,b^3\,d\,(a+b\,\text{Tan}[c+d\,x])^2}\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$
$$\left(\frac{2\,(5\,a^4+4\,a^2\,b^2-b^4)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)^2}+\frac{1}{4\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)}\right.$$
$$a\,b^3\,\text{Csc}[c+d\,x]^2\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+2\,(a+b)\right.\right.$$
$$\left.\left.\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)$$
$$\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\,(a+b\,\text{Tan}[c+d\,x])-\frac{1}{2\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1-\text{Tan}[c+d\,x]^2)\,(1+\text{Tan}[c+d\,x]^2)}\,b^4\,\text{Cos}[2\,(c+d\,x)]$$
$$\text{Csc}[c+d\,x]\left(\frac{4\,(a^2-b^2)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 592: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^{7/2}}{(a+b\,\text{Tan}[c+d\,x])^2}\,\mathrm{d}x$$

Optimal (type 3, 358 leaves, 16 steps):

$$-\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}+\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}-$$
$$\frac{a^{5/2}\left(3a^2+7b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{b^{5/2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}+$$
$$\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}+\frac{\left(3a^2+2b^2\right)\sqrt{\text{Tan}[c+dx]}}{b^2\left(a^2+b^2\right) d}-\frac{a^2\,\text{Tan}[c+dx]^{3/2}}{b\left(a^2+b^2\right) d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 775 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+dx])^2}\text{Sec}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2$$
$$\left(\frac{3a^2+2b^2}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^2}-\frac{a^2\,\text{Sin}[c+dx]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}\right)\sqrt{\text{Tan}[c+dx]}-\frac{1}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^2\,d\,(a+b\,\text{Tan}[c+dx])^2}$$
$$\text{Sec}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2\left(\frac{2\left(3a^3+3ab^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]\text{Csc}[c+dx]\,\text{Sec}[c+dx]^3\,(a+b\,\text{Tan}[c+dx])}{\sqrt{a}\sqrt{b}\,(b+a\,\text{Cot}[c+dx])\left(1+\text{Tan}[c+dx]^2\right)^2}+\right.$$
$$\frac{1}{4\left(a^2+b^2\right)(b+a\,\text{Cot}[c+dx])\left(1+\text{Tan}[c+dx]^2\right)}b^3\,\text{Csc}[c+dx]^2$$
$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]+\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]+\right.\right.$$
$$\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2\,(c+dx)]$$
$$(a+b\,\text{Tan}[c+dx])+\frac{1}{2\left(a^2+b^2\right)(b+a\,\text{Cot}[c+dx])\left(1-\text{Tan}[c+dx]^2\right)\left(1+\text{Tan}[c+dx]^2\right)}a\,b^2\,\text{Cos}[2\,(c+dx)]\,\text{Csc}[c+dx]$$
$$\left(\frac{4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{\sqrt{a}\sqrt{b}}+\sqrt{2}\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^3\,(a+b\,\text{Tan}[c+dx])\right)$$

Problem 595: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\sqrt{\text{Tan}[c+d x]}}{(a+b \,\text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 316 leaves, 15 steps):

$$-\frac{\left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{\sqrt{b} \left(3 a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2-2 a b-b^2\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{\left(a^2-2 a b-b^2\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{b \sqrt{\text{Tan}[c+d x]}}{\left(a^2+b^2\right) d (a+b \,\text{Tan}[c+d x])}$$

Result (type 3, 466 leaves):

$$\frac{1}{2 d}\left(-\frac{2 b \,\text{Cos}[c+d x] \sqrt{\text{Tan}[c+d x]}}{(a-i b) (a+i b) (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])}+\frac{1}{4 \left(a^2+b^2\right)^2 (b+a \,\text{Cot}[c+d x])} \text{Csc}[c+d x] (a+b \,\text{Tan}[c+d x]) \left(a \,\text{Csc}[c+d x] \left(-8 \sqrt{a} \sqrt{b} \,\text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sin}[2 (c+d x)]-\frac{1}{1-\text{Tan}[c+d x]^2} 2 b \,\text{Cos}[2 (c+d x)] \left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]\right)\right)$$

Problem 596: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{\mathrm{Tan}[c+d x]}\,(a+b\,\mathrm{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 317 leaves, 15 steps):

$$-\frac{\left(a^2-2 a b-b^2\right) \mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2 d}+\frac{\left(a^2-2 a b-b^2\right) \mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{3/2}\left(5 a^2+b^2\right) \mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{3/2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2+2 a b-b^2\right) \mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]}{2 \sqrt{2}\,\left(a^2+b^2\right)^2 d}+$$
$$\frac{\left(a^2+2 a b-b^2\right) \mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]}{2 \sqrt{2}\,\left(a^2+b^2\right)^2 d}+\frac{b^2 \sqrt{\mathrm{Tan}[c+d x]}}{a\left(a^2+b^2\right) d\,(a+b\,\mathrm{Tan}[c+d x])}$$

Result (type 3, 468 leaves):

$$\frac{1}{4 a^{3/2} d}\left(\frac{1}{\left(a^2+b^2\right)^2}\left(-2 \sqrt{2}\,a^{3/2}\left(a^2-2 a b-b^2\right) \mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+2 \sqrt{2}\,a^{3/2}\left(a^2-2 a b-b^2\right) \mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+20 a^2 b^{3/2}\right.\right.$$
$$\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]+4 b^{7/2} \mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]-\sqrt{2}\,a^{7/2} \mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-$$
$$2 \sqrt{2}\,a^{5/2} b\,\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]+\sqrt{2}\,a^{3/2} b^2 \mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]+$$
$$\sqrt{2}\,a^{7/2} \mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]+2 \sqrt{2}\,a^{5/2} b\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-$$
$$\left.\left.\sqrt{2}\,a^{3/2} b^2 \mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)+\frac{4 \sqrt{a}\,b^2 \mathrm{Cos}[c+d x]\,\sqrt{\mathrm{Tan}[c+d x]}}{(a-i b)\,(a+i b)\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])}\right)$$

Problem 597: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\mathrm{Tan}[c+d x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 358 leaves, 16 steps):

$$\frac{\left(a^2+2\,a\,b-b^2\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-\frac{\left(a^2+2\,a\,b-b^2\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-$$

$$\frac{b^{5/2}\,\left(7\,a^2+3\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,\left(a^2+b^2\right)^2\,d}-\frac{\left(a^2-2\,a\,b-b^2\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$

$$\frac{\left(a^2-2\,a\,b-b^2\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-\frac{2\,a^2+3\,b^2}{a^2\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Tan}[c+d\,x]}}+\frac{b^2}{a\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Tan}[c+d\,x]}\,\left(a+b\,\text{Tan}[c+d\,x]\right)}$$

Result (type 3, 769 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^2}$$
$$\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(-\frac{b^3}{a^3\,(a^2+b^2)}-\frac{2\,\text{Cot}[c+d\,x]}{a^2}+\frac{b^4\,\text{Sin}[c+d\,x]}{a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}-\frac{1}{2\,a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(a+b\,\text{Tan}[c+d\,x])^2}$$
$$\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(\frac{2\,(3\,a^2\,b+3\,b^3)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)^2}+\right.$$
$$\frac{1}{4\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)}\,a^3\,\text{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\text{Tan}[c+d\,x])-\frac{1}{2\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1-\text{Tan}[c+d\,x]^2)\,(1+\text{Tan}[c+d\,x]^2)}\,a^2\,b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]$$
$$\left(\frac{4\,(a^2-b^2)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 598: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 397 leaves, 17 steps):

$$\frac{\left(a^2-2ab-b^2\right)\operatorname{ArcTan}\left[1-\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2-2ab-b^2\right)\operatorname{ArcTan}\left[1+\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}+\frac{b^{7/2}\left(9a^2+5b^2\right)\operatorname{ArcTan}\left[\frac{\sqrt{b}\sqrt{\operatorname{Tan}[c+dx]}}{\sqrt{a}}\right]}{a^{7/2}\left(a^2+b^2\right)^2 d}+$$

$$\frac{\left(a^2+2ab-b^2\right)\operatorname{Log}\left[1-\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}+\operatorname{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2+2ab-b^2\right)\operatorname{Log}\left[1+\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}+\operatorname{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}-$$

$$\frac{2a^2+5b^2}{3a^2\left(a^2+b^2\right)d\operatorname{Tan}[c+dx]^{3/2}}+\frac{b\left(4a^2+5b^2\right)}{a^3\left(a^2+b^2\right)d\sqrt{\operatorname{Tan}[c+dx]}}+\frac{b^2}{a\left(a^2+b^2\right)d\operatorname{Tan}[c+dx]^{3/2}\left(a+b\operatorname{Tan}[c+dx]\right)}$$

Result (type 3, 820 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$
$$\left(\frac{2\,a^4+2\,a^2\,b^2+3\,b^4}{3\,a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)}+\frac{4\,b\,\mathrm{Cot}[c+d\,x]}{a^3}-\frac{2\,\mathrm{Csc}[c+d\,x]^2}{3\,a^2}-\frac{b^5\,\mathrm{Sin}[c+d\,x]}{a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\;+$$
$$\frac{1}{2\,a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$
$$\left(\frac{2\left(-a^4+4\,a^2\,b^2+5\,b^4\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\left(1+\mathrm{Tan}[c+d\,x]^2\right)^2}+\right.$$
$$\frac{1}{4\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d\,x])\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,a^3\,b\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])+\frac{1}{2\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d\,x])\left(1-\mathrm{Tan}[c+d\,x]^2\right)\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,a^4\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]$$
$$\left(\frac{4\left(a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 599: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{11/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 493 leaves, 18 steps):

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{a^{7/2}\left(35a^4+102a^2b^2+99b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4b^{9/2}\left(a^2+b^2\right)^3 d}+\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{a\left(35a^4+67a^2b^2+24b^4\right)\sqrt{\text{Tan}[c+dx]}}{4b^4\left(a^2+b^2\right)^2 d}+$$

$$\frac{\left(35a^4+67a^2b^2+8b^4\right)\text{Tan}[c+dx]^{3/2}}{12b^3\left(a^2+b^2\right)^2 d}-\frac{a^2\,\text{Tan}[c+dx]^{7/2}}{2b\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+dx])^2}-\frac{a^2\left(7a^2+15b^2\right)\text{Tan}[c+dx]^{5/2}}{4b^2\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 890 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^3}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,\sqrt{\text{Tan}[c+d\,x]}\,\left(-\frac{a\,(35\,a^4+69\,a^2\,b^2+24\,b^4)}{4\,(a-i\,b)^2\,(a+i\,b)^2\,b^4}+\right.$$

$$\left.\frac{a^5}{2\,(a-i\,b)^2\,(a+i\,b)^2\,b^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{3\,(3\,a^5\,\text{Sin}[c+d\,x]+7\,a^3\,b^2\,\text{Sin}[c+d\,x])}{4\,(a-i\,b)^2\,(a+i\,b)^2\,b^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}+\frac{2\,\text{Tan}[c+d\,x]}{3\,b^3}\right)+$$

$$\frac{1}{8\,(a-i\,b)^2\,(a+i\,b)^2\,b^4\,d\,(a+b\,\text{Tan}[c+d\,x])^3}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(\left(2\,(35\,a^6+67\,a^4\,b^2+28\,a^2\,b^4-4\,b^6)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)\Big/\right.$$

$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)^2\right)+\frac{1}{(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1+\text{Tan}[c+d\,x]^2)}\,2\,a\,b^5\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]$$

$$(a+b\,\text{Tan}[c+d\,x])-\frac{1}{2\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d\,x])\,(1-\text{Tan}[c+d\,x]^2)\,(1+\text{Tan}[c+d\,x]^2)}\,(-4\,a^2\,b^4+4\,b^6)\,\text{Cos}[2\,(c+d\,x)]$$

$$\text{Csc}[c+d\,x]\,\left(\frac{4\,(a^2-b^2)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 600: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d\,x]^{9/2}}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 444 leaves, 17 steps) :

$$-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{a^{5/2}\left(15a^4+46a^2b^2+63b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4b^{7/2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(15a^4+31a^2b^2+8b^4\right)\sqrt{\text{Tan}[c+dx]}}{4b^3\left(a^2+b^2\right)^2 d}-\frac{a^2\,\text{Tan}[c+dx]^{5/2}}{2b\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+dx])^2}-\frac{a^2\left(5a^2+13b^2\right)\text{Tan}[c+dx]^{3/2}}{4b^2\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 869 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{15\,a^4+33\,a^2\,b^2+8\,b^4}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^3}-\frac{a^4}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-5\,a^4\,\mathrm{Sin}[c+d\,x]-17\,a^2\,b^2\,\mathrm{Sin}[c+d\,x]}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}-\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^3\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$
$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,\left(15\,a^5+31\,a^3\,b^2+16\,a\,b^4\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)^2}+\right.$$
$$\frac{1}{4\,\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\left(-4\,a^2\,b^3+4\,b^5\right)\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])+\frac{1}{\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1-\mathrm{Tan}[c+d\,x]^2\right)\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,4\,a\,b^4\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]$$
$$\left(\frac{4\,\left(a^2-b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 601: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{7/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 396 leaves, 16 steps):

$$-\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+$$
$$\frac{a^{3/2}\left(3\,a^4+6\,a^2\,b^2+35\,b^4\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,b^{5/2}\left(a^2+b^2\right)^3\,d}-\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+$$
$$\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}-\frac{a^2\,\text{Tan}[c+d\,x]^{3/2}}{2\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^2}-\frac{a^2\left(3\,a^2+11\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}}{4\,b^2\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 855 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(-\frac{a\,(3\,a^2+13\,b^2)}{4\,(a-i\,b)^2\,(a+i\,b)^2\,b^2}+\frac{a^3}{2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{a^3\,\mathrm{Sin}[c+d\,x]+13\,a\,b^2\,\mathrm{Sin}[c+d\,x]}{4\,(a-i\,b)^2\,(a+i\,b)^2\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$

$$\sqrt{\mathrm{Tan}[c+d\,x]}-\frac{1}{8\,(a-i\,b)^2\,(a+i\,b)^2\,b^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$

$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,(-3\,a^4-7\,a^2\,b^2-4\,b^4)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)^2}+\right.$$

$$\frac{1}{(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)}\,2\,a\,b^3\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$

$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{2\,(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1-\mathrm{Tan}[c+d\,x]^2)\,(1+\mathrm{Tan}[c+d\,x]^2)}\,(-4\,a^2\,b^2+4\,b^4)\,\mathrm{Cos}[2\,(c+d\,x)]$$

$$\mathrm{Csc}[c+d\,x]\left(\frac{4\,(a^2-b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 602: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{5/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 390 leaves, 16 steps):

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{\sqrt{a}\left(a^4+18a^2b^2-15b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4b^{3/2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{a^2\sqrt{\text{Tan}[c+dx]}}{2b\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+dx])^2}+\frac{a\left(a^2+9b^2\right)\sqrt{\text{Tan}[c+dx]}}{4b\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 837 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^3}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(-\frac{a^2-9\,b^2}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b}-\frac{a^2\,b}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{3\,\left(a^2\,\text{Sin}[c+d\,x]-3\,b^2\,\text{Sin}[c+d\,x]\right)}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$

$$\sqrt{\text{Tan}[c+d\,x]}+\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,d\,(a+b\,\text{Tan}[c+d\,x])^3}$$

$$\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{2\,\left(a^3+a\,b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d\,x])\,\left(1+\text{Tan}[c+d\,x]^2\right)^2}+\right.$$

$$\frac{1}{4\,\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d\,x])\,\left(1+\text{Tan}[c+d\,x]^2\right)}\left(-4\,a^2\,b+4\,b^3\right)\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]$$

$$(a+b\,\text{Tan}[c+d\,x])+\frac{1}{\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d\,x])\,\left(1-\text{Tan}[c+d\,x]^2\right)\,\left(1+\text{Tan}[c+d\,x]^2\right)}4\,a\,b^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]$$

$$\left(\frac{4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 603: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^{3/2}}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 385 leaves, 16 steps):

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3a^4-26a^2b^2+3b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4\sqrt{a}\sqrt{b}\left(a^2+b^2\right)^3 d}+\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{a\sqrt{\text{Tan}[c+dx]}}{2\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+dx])^2}+\frac{\left(3a^2-5b^2\right)\sqrt{\text{Tan}[c+dx]}}{4\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 838 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{5\left(a^2-b^2\right)}{4\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{a\,b^2}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-7\,a^2\,b\,\mathrm{Sin}[c+d\,x]+5\,b^3\,\mathrm{Sin}[c+d\,x]}{4\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}+\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$
$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\left(-a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\left(1+\mathrm{Tan}[c+d\,x]^2\right)^2}+\right.$$
$$\frac{1}{\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d\,x])\left(1+\mathrm{Tan}[c+d\,x]^2\right)}2\,a\,b\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{2\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d\,x])\left(1-\mathrm{Tan}[c+d\,x]^2\right)\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\left(-4\,a^2+4\,b^2\right)\mathrm{Cos}[2\,(c+d\,x)]$$
$$\mathrm{Csc}[c+d\,x]\left(\frac{4\left(a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 604: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Tan}[c+d\,x]}}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 389 leaves, 16 steps):

$$-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{\sqrt{b}\left(15a^4-18a^2b^2-b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4a^{3/2}\left(a^2+b^2\right)^3 d}+\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{b\sqrt{\text{Tan}[c+dx]}}{2\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+dx])^2}-\frac{b\left(7a^2-b^2\right)\sqrt{\text{Tan}[c+dx]}}{4a\left(a^2+b^2\right)^2 d\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 846 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{b\,\left(9\,a^2-b^2\right)}{4\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{b^3}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{11\,a^2\,b^2\,\mathrm{Sin}[c+d\,x]-b^4\,\mathrm{Sin}[c+d\,x]}{4\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}+\frac{1}{8\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$
$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,\left(a^2\,b+b^3\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)^2}+\right.$$
$$\frac{1}{4\,\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\left(4\,a^3-4\,a\,b^2\right)\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1-\mathrm{Tan}[c+d\,x]^2\right)\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,4\,a^2\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]$$
$$\left(\frac{4\,\left(a^2-b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 605: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 396 leaves, 16 steps) :

$$-\frac{(a+b)\left(a^2-4ab+b^2\right)\operatorname{ArcTan}\left[1-\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a+b)\left(a^2-4ab+b^2\right)\operatorname{ArcTan}\left[1+\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{b^{3/2}\left(35a^4+6a^2b^2+3b^4\right)\operatorname{ArcTan}\left[\frac{\sqrt{b}\sqrt{\operatorname{Tan}[c+dx]}}{\sqrt{a}}\right]}{4a^{5/2}\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4ab+b^2\right)\operatorname{Log}\left[1-\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}+\operatorname{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\operatorname{Log}\left[1+\sqrt{2}\sqrt{\operatorname{Tan}[c+dx]}+\operatorname{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{b^2\sqrt{\operatorname{Tan}[c+dx]}}{2a\left(a^2+b^2\right)d\,(a+b\operatorname{Tan}[c+dx])^2}+\frac{b^2\left(11a^2+3b^2\right)\sqrt{\operatorname{Tan}[c+dx]}}{4a^2\left(a^2+b^2\right)^2 d\,(a+b\operatorname{Tan}[c+dx])}$$

Result (type 3, 862 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{b^2\,(13\,a^2+3\,b^2)}{4\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{b^4}{2\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{3\,(5\,a^2\,b^3\,\mathrm{Sin}[c+d\,x]+b^5\,\mathrm{Sin}[c+d\,x])}{4\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}+\frac{1}{8\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$
$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,(4\,a^4+7\,a^2\,b^2+3\,b^4)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)^2}-\right.$$
$$\frac{1}{(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)}\,2\,a^3\,b\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{2\,(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1-\mathrm{Tan}[c+d\,x]^2)\,(1+\mathrm{Tan}[c+d\,x]^2)}\,(4\,a^4-4\,a^2\,b^2)\,\mathrm{Cos}[2\,(c+d\,x)]$$
$$\mathrm{Csc}[c+d\,x]\left(\frac{4\,(a^2-b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 606: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 444 leaves, 17 steps):

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{b^{5/2}\left(63a^4+46a^2b^2+15b^4\right)\text{ArcTan}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{4a^{7/2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Tan}[c+dx]}+\text{Tan}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{8a^4+31a^2b^2+15b^4}{4a^3\left(a^2+b^2\right)^2 d\sqrt{\text{Tan}[c+dx]}}+$$

$$\frac{b^2}{2a\left(a^2+b^2\right)d\sqrt{\text{Tan}[c+dx]}\,(a+b\,\text{Tan}[c+dx])^2}+\frac{b^2\left(13a^2+5b^2\right)}{4a^2\left(a^2+b^2\right)^2 d\sqrt{\text{Tan}[c+dx]}\,(a+b\,\text{Tan}[c+dx])}$$

Result (type 3, 875 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{b^3\,(17\,a^2+7\,b^2)}{4\,a^4\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,\mathrm{Cot}[c+d\,x]}{a^3}-\frac{b^5}{2\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$
$$\left.\frac{19\,a^2\,b^4\,\mathrm{Sin}[c+d\,x]+7\,b^6\,\mathrm{Sin}[c+d\,x]}{4\,a^4\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}-\frac{1}{8\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}$$
$$\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,(16\,a^4\,b+31\,a^2\,b^3+15\,b^5)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)^2}+\right.$$
$$\frac{1}{4\,(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1+\mathrm{Tan}[c+d\,x]^2)}\,(4\,a^5-4\,a^3\,b^2)\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$
$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{(a^2+b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,(1-\mathrm{Tan}[c+d\,x]^2)\,(1+\mathrm{Tan}[c+d\,x]^2)}\,4\,a^4\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]$$
$$\left(\frac{4\,(a^2-b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$
$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 607: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 493 leaves, 18 steps) :

$$\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}-\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+$$

$$\frac{b^{7/2}\left(99\,a^4+102\,a^2\,b^2+35\,b^4\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,a^{9/2}\left(a^2+b^2\right)^3\,d}+\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}-$$

$$\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}-\frac{8\,a^4+67\,a^2\,b^2+35\,b^4}{12\,a^3\left(a^2+b^2\right)^2\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{b\left(24\,a^4+67\,a^2\,b^2+35\,b^4\right)}{4\,a^4\left(a^2+b^2\right)^2\,d\,\sqrt{\text{Tan}[c+d\,x]}}+$$

$$\frac{b^2}{2\,a\left(a^2+b^2\right)\,d\,\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{b^2\left(15\,a^2+7\,b^2\right)}{4\,a^2\left(a^2+b^2\right)^2\,d\,\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 911 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{8\,a^6+16\,a^4\,b^2+71\,a^2\,b^4+33\,b^6}{12\,a^5\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{6\,b\,\mathrm{Cot}[c+d\,x]}{a^4}-\frac{2\,\mathrm{Csc}[c+d\,x]^2}{3\,a^3}+\frac{b^6}{2\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-23\,a^2\,b^5\,\mathrm{Sin}[c+d\,x]-11\,b^7\,\mathrm{Sin}[c+d\,x]}{4\,a^5\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}+$$

$$\frac{1}{8\,a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(\left(2\left(-4\,a^6+28\,a^4\,b^2+67\,a^2\,b^4+35\,b^6\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)\Big/\right.$$

$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)^2\right)+\frac{1}{\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,2\,a^5\,b\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]$$

$$(a+b\,\mathrm{Tan}[c+d\,x])-\frac{1}{2\,\left(a^2+b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\left(1-\mathrm{Tan}[c+d\,x]^2\right)\,\left(1+\mathrm{Tan}[c+d\,x]^2\right)}\,\left(-4\,a^6+4\,a^4\,b^2\right)\,\mathrm{Cos}[2\,(c+d\,x)]$$

$$\mathrm{Csc}[c+d\,x]\,\left(\frac{4\,\left(a^2-b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

- **Problem 608: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[c+d\,x]^{5/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 231 leaves, 14 steps):

$$-\frac{\sqrt{\mathrm{i}\,a-b}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{\left(a^2+8\,b^2\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{4\,b^{3/2}\,d}+$$

$$\frac{\sqrt{\mathrm{i}\,a+b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{a\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{4\,b\,d}+\frac{\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{2\,b\,d}$$

Result (type 4, 49 190 leaves) : Display of huge result suppressed !

Problem 609: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d\,x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 184 leaves, 13 steps) :

$$\frac{i\sqrt{i\,a-b}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{b}\,d}+\frac{i\sqrt{i\,a+b}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 9406 leaves) :

$$\frac{\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\left(2\sqrt{a^2+b^2}\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(-\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(d\,\sqrt{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{\text{Sec}[c+d\,x]}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}\right.$$

$$\left(-\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,\sqrt{a^2+b^2}\right.$$

$$\Bigg(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\Bigg)\,\text{Sec}[c+d\,x]^2$$

$$\sqrt{\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Sec}[c+d x]} \sqrt{\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{a^2+b^2}} \sqrt{\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} + \Bigg(a \sqrt{a^2+b^2}$$

$$\Bigg(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right] + \frac{a \,\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}} +$$

$$\frac{2 b \,\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i a+b+\sqrt{a^2+b^2}} +$$

$$\frac{2 a \,\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i \left(b+\sqrt{a^2+b^2}\right)} +$$

$$\frac{2 i a \,\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}} +$$

$$\frac{2 b \,\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\Big/$$

$$\left(2\left(b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\right)-\left(\sqrt{a^2+b^2}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{a^2+b^2}\;\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]$$

$$\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}$$

$$\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\left(\sqrt{a^2+b^2}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\, i\, a\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\right)\Bigg/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{a^2+b^2}\ \sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}$$

$$\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\sqrt{a^2+b^2}\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2}\sqrt{a^2+b^2}\left(-i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2}\sqrt{a^2+b^2}\left(a+i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(i\, a^2 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(2\sqrt{2}\sqrt{a^2+b^2}\left(i\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i\, a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\, b \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(2\sqrt{2}\sqrt{a^2+b^2}\left(i\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i\, a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2 \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)+\left(\sqrt{a^2+b^2}\right.$$

$$\left(-\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a \operatorname{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,\mathbb{i}\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}\right)\Bigg)\Bigg)$$

Problem 610: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\sqrt{\text{Tan}[c+d x]}\sqrt{a+b\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 3, 151 leaves, 11 steps):

$$\frac{\sqrt{i a-b}\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{d}+\frac{2\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{d}-\frac{\sqrt{i a+b}\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{d}$$

Result (type 4, 6279 leaves):

$$\Bigg(4a\Bigg(\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+$$

$$\frac{(-i a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{i\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\,d\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right.$$

$$\left(-\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\text{Tan}[c+d\,x]^{3/2}}\,2\,a\left(\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.$$

$$\frac{(-i\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{5/2}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+a^2\left(\left(\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.$$

$$\frac{(-i\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right) \Big/$$

$$\left(\sqrt{a^2+b^2}\ \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Tan}[c+d\,x]}\right) +$$

$$\left(2\,a\left(\frac{b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}} +\right.\right.$$

$$\frac{(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{\mathrm{i}\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,a\left(\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(-i\,a+b)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;-$$

$$\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}}\;2\,a\left(\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(-i\,a+b)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\mathrm{Tan}[c+d\,x]}}4\,a\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a(-\mathrm{i}\,a+b)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(\mathrm{i}\,a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)\Bigg)$$

Problem 611: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 115 leaves, 7 steps):

$$-\frac{i\sqrt{i\,a-b}\;\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{i\sqrt{i\,a+b}\;\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}$$

Result (type 4, 6022 leaves):

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,\sqrt{1+\text{Sec}[c+d\,x]}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}\right)$$

$$\Bigg(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])^2}\,4\,b\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\mathrm{i}\,a\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(-\mathrm{i}\,a-b)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\mathrm{Sec}[c+d x]^3\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}\,\sqrt{\mathrm{Tan}[c+d x]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\mathrm{Sec}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}\,(a+b\,\mathrm{Tan}[c+d x])}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{1}{1+\mathrm{Cos}[c+d x]}}$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\Bigg[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\mathrm{Sec}[c+d x]^3\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}\,-$$

$$\Bigg(a\sqrt{\frac{1}{1+\mathrm{Cos}[c+d x]}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\Bigg[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])\right)-$$

$$\left(a\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])\right)+$$

$$\left(\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (-\mathbb{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] +$$

$$(-\mathbb{i}\,a-b)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)\Big/\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ (a+b\,\text{Tan}[c+d\,x])\Bigg) +$$

$$\Bigg(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\Bigg(\mathbb{i}\,a\,\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] +$$

$$(-\mathbb{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] +$$

$$(-\mathbb{i}\,a-b)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\text{Sec}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a-b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\text{Sec}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}[c+d\,x]\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\left(\frac{a\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathbb{i}\,(-\mathbb{i}\,a+b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathbb{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{\mathbb{i}\,(-\mathbb{i}\,a-b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathbb{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;\sqrt{\mathrm{Tan}[c+d\,x]}\;-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(1+\mathrm{Sec}[c+d\,x])^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\;\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,a\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathbb{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\, a-b)\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^2 \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \text{Tan}[c+d\,x]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])}\, 2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(\frac{1}{1+\text{Cos}[c+d\,x]}\right)^{3/2} \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\mathrm{i}\, a\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\, a+b)\, \text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\, a-b)\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \text{Tan}[c+d\,x]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])}$$

$$4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\mathrm{i}\, a\, \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +\right.$$

$$(-\mathrm{i}\, a+b)\, \text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.(-\mathrm{i}\, a-b)\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left. \text{Sec}[c+d x]\, \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}\, \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\, \text{Tan}[c+d x]^{3/2}\right)\right)$$

- **Problem 612: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{a+b\, \text{Tan}[c+d x]}}{\text{Tan}[c+d x]^{3/2}}\, dx$$

Optimal (type 3, 139 leaves, 8 steps):

$$-\frac{\sqrt{\mathrm{i}\, a-b}\, \text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\, \text{Tan}[c+d x]}}\right]}{d}+\frac{\sqrt{\mathrm{i}\, a+b}\, \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\, \text{Tan}[c+d x]}}\right]}{d}-\frac{2\sqrt{a+b\, \text{Tan}[c+d x]}}{d\sqrt{\text{Tan}[c+d x]}}$$

Result (type 4, 4382 leaves):

$$-\frac{2\sqrt{a+b\, \text{Tan}[c+d x]}}{d\sqrt{\text{Tan}[c+d x]}}-$$

$$\left(2\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^{2}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^{2}+b^{2}}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^{2}+b^{2}}}}\ \left(-\mathrm{i}\ b\ \mathrm{EllipticF}\left[\mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^{2}+b^{2}}}{b-\sqrt{a^{2}+b^{2}}}\right]+\right.\right.$$

$$(a+\mathrm{i}\ b)\ \mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^{2}+b^{2}}\right)}{a},\ \mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^{2}+b^{2}}}{b-\sqrt{a^{2}+b^{2}}}\right]-$$

$$\left.(a-\mathrm{i}\ b)\ \mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^{2}+b^{2}}\right)}{a},\ \mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^{2}+b^{2}}}{b-\sqrt{a^{2}+b^{2}}}\right]\right)\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}$$

$$\left(\frac{b\,\mathrm{Csc}[c+d\,x]\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,\mathrm{Cos}[2\ (c+d\,x)]\ \mathrm{Csc}[c+d\,x]\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{a\,\mathrm{Csc}[c+d\,x]\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}[2\ (c+d\,x)]\ \sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}\ d\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\ \left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \mathrm{Tan}[c+d\,x]^{3/2}}\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^{2}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^{2}+b^{2}}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^{2}+b^{2}}}}\ \left(-\mathrm{i}\ b\ \mathrm{EllipticF}\left[\mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^{2}+b^{2}}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^{2}+b^{2}}}{b-\sqrt{a^{2}+b^{2}}}\right]+\right.$$

$$(a+i\,b)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-i\,b)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}+$$

$$\Bigg(\sqrt{2}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \Bigg(-i\,b\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a+i\,b)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-i\,b)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(a\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(-i\,b\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a+\mathbb{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathbb{i}\,b)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$3\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathbb{i}\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathbb{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\left(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)\ \mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}2\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathrm{i}\ (a+\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)$$

■ **Problem 613: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 181 leaves, 10 steps):

$$\frac{i\,\sqrt{i\,a-b}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{i\,\sqrt{i\,a+b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}-\frac{2\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4256 leaves):

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]\left(i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(-i\,a-b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \mathrm{Tan}[c+d\,x]^{3/2}}\sqrt{2}\right.\right.$$

$$\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a-b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(\sqrt{2}\ a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(-i\,a-b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\text{i}\,a\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-\text{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(-\text{i}\,a-b)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\text{i}\,a\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\text{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-i a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-i a-b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-i a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i a-b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-\left(2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(\frac{a\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(-i\,a+b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{i\,(-i\,a-b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}\right)\right)\right)+$$

$$\frac{\left(\frac{2}{3}-\frac{2\,b\,\text{Cot}[c+d\,x]}{3\,a}-\frac{2}{3}\,\text{Csc}[c+d\,x]^2\right)\,\sqrt{\text{Tan}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

- **Problem 614: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\text{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 221 leaves, 10 steps) :

$$\frac{\sqrt{\mathrm{i}\, a-b}\ \text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{\sqrt{\mathrm{i}\, a+b}\ \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{2\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,d\,\text{Tan}[c+d\,x]^{5/2}}-\frac{2\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{2\left(15\,a^2+2\,b^2\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a^2\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4462 leaves) :

$$\left(2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(-\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\left(-\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\left.\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\ \left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \text{Tan}[c+d\,x]^{3/2}}\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(\sqrt{2}\,a\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$3\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a - i b)\, \text{EllipticPi}\left[\frac{i\left(b + \sqrt{a^2 + b^2}\right)}{a},\, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]}}\right],\, \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\right) \sqrt{\text{Sec}[c + d x]}\, \sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, (a\, \text{Cos}[c + d x] + b\, \text{Sin}[c + d x])^{3/2} \sqrt{\text{Tan}[c + d x]}} \sqrt{2}\, \text{Cos}\left[\frac{1}{2}(c + d x)\right]^2 \sqrt{1 + \frac{a\, \text{Cot}\left[\frac{1}{2}(c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{2 + \frac{2\, a\, \text{Cot}\left[\frac{1}{2}(c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \left(-i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]}}\right],\, \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] +\right.$$

$$(a + i b)\, \text{EllipticPi}\left[-\frac{i\left(b + \sqrt{a^2 + b^2}\right)}{a},\, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]}}\right],\, \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] - (a - i b)\, \text{EllipticPi}\left[\frac{i\left(b + \sqrt{a^2 + b^2}\right)}{a},\right.$$

$$\left.\left. i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]}}\right],\, \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\right) \sqrt{\text{Sec}[c + d x]}\, (b\, \text{Cos}[c + d x] - a\, \text{Sin}[c + d x])\, \text{Tan}\left[\frac{1}{2}(c + d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \sqrt{a\, \text{Cos}[c + d x] + b\, \text{Sin}[c + d x]}\, \sqrt{\text{Tan}[c + d x]}} 2 \sqrt{2}\, \text{Cos}\left[\frac{1}{2}(c + d x)\right] \sqrt{1 + \frac{a\, \text{Cot}\left[\frac{1}{2}(c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{2 + \frac{2\, a\, \text{Cot}\left[\frac{1}{2}(c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \left(-i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c + d x)\right]}}\right],\, \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] +\right.$$

$$(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{d}\left(\frac{2\,b}{15\,a}+\frac{4\left(9\,a^2\,\text{Cos}[c+d\,x]+b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{15\,a^2}-\frac{2\,b\,\text{Csc}[c+d\,x]^2}{15\,a}-\frac{2}{5}\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}$$
$$\sqrt{a+b\,\text{Tan}[c+d\,x]}$$

- **Problem 615: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 280 leaves, 15 steps):

$$\frac{\mathrm{i}\,(\mathrm{i}\,a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{a\left(a^2+24\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{8\,b^{3/2}\,d}-\frac{\mathrm{i}\,(\mathrm{i}\,a+b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-$$
$$\frac{\left(a^2+8\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{8\,b\,d}-\frac{a\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{12\,b\,d}+\frac{\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{3\,b\,d}$$

Result (type 4, 65 125 leaves): Display of huge result suppressed!

- **Problem 616: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 226 leaves, 14 steps):

$$\frac{(\mathrm{i}\, a-b)^{3/2}\, \text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{d}+\frac{\left(3\, a^2-8\, b^2\right)\, \text{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{4\, \sqrt{b}\, d}+$$

$$\frac{(\mathrm{i}\, a+b)^{3/2}\, \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{d}+\frac{3\, a\, \sqrt{\text{Tan}[c+d\, x]}\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{4\, d}+\frac{\sqrt{\text{Tan}[c+d\, x]}\, (a+b\, \text{Tan}[c+d\, x])^{3/2}}{2\, d}$$

Result (type 4, 59 626 leaves): Display of huge result suppressed!

- **Problem 617: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{\text{Tan}[c+d\, x]}\, (a+b\, \text{Tan}[c+d\, x])^{3/2}\, dx$$

Optimal (type 3, 186 leaves, 13 steps):

$$-\frac{\mathrm{i}\, (\mathrm{i}\, a-b)^{3/2}\, \text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{d}+\frac{3\, a\, \sqrt{b}\, \text{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{d}+$$

$$\frac{\mathrm{i}\, (\mathrm{i}\, a+b)^{3/2}\, \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\text{Tan}[c+d\, x]}}{\sqrt{a+b\, \text{Tan}[c+d\, x]}}\right]}{d}+\frac{b\, \sqrt{\text{Tan}[c+d\, x]}\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{d}$$

Result (type 4, 12 017 leaves):

$$\frac{b\, \text{Cos}[c+d\, x]\, \sqrt{\text{Tan}[c+d\, x]}\, (a+b\, \text{Tan}[c+d\, x])^{3/2}}{d\, (a\, \text{Cos}[c+d\, x]+b\, \text{Sin}[c+d\, x])}+\left(2\, \sqrt{a^2+b^2}\right.$$

$$\left(-b\, \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\, \text{Tan}\left[\frac{1}{2}\, (c+d\, x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\, \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{3\, a\, b\, \text{EllipticPi}\left[\frac{2\, \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\, \text{Tan}\left[\frac{1}{2}\, (c+d\, x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\, \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{a^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)\Big/\left(d\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ \text{Sec}[c+d\,x]^{3/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\sqrt{\text{Tan}[c+d\,x]}\right.$$

$$\left(-\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \text{Tan}[c+d\,x]^{3/2}}\sqrt{a^2+b^2}\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\right.\right.\right.$$

$$\left.\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\,\text{Sec}[c+d\,x]^2$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,+$$

$$\left(a\sqrt{a^2+b^2}\,\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}\,-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}\,+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}\,+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathbb{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\Bigg/$$

$$\left(2\left(b+\sqrt{a^2+b^2}\right)\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{a^2+b^2}\,\left(-b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{3\,a\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,i\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$\sqrt{a^2+b^2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;+$$

$$\left(\sqrt{a^2+b^2}\;\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left(\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{a^2+b^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(3\,a^2\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^3\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a\,b^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a^2\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^3\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(i\,a^2\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\Bigg(\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a\,b^2\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\Bigg(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(3\,a^2\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\Bigg(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)+$$

$$\left(\sqrt{a^2+b^2}\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\right)\Big/$$

$$\left.\left.\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)\right)\right)$$

- **Problem 619: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 145 leaves, 8 steps):

$$\frac{i\,(i\,a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{i\,(i\,a+b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4519 leaves):

$$-\frac{2\,a\,\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}}-$$

$$\left(2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\left(\frac{a\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a\,b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{a^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(\sqrt{2}\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(a\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$3\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a - i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\, +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\, +\right.$$

$$(a + i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a - i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\, +\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}2\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(-\frac{a\,b\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a+i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\,\sqrt{\text{Tan}[c+d\,x]}\right)$$

- **Problem 620: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^{3/2}}{\text{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 173 leaves, 9 steps):

$$\frac{(i\,a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{(i\,a+b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}-\frac{8\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4677 leaves):

$$-\left(\left(2\,i\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(-\frac{a^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{a^2\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\left.\left.\frac{a\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,\mathrm{i}\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(\mathrm{i}\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a^2-b^2)\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\mathrm{i}\,a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left((a^2-b^2)\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\right.\right.$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\sqrt{2}\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\right)-$$

$$\frac{1}{\sqrt{2} \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 3 i \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,\mathbb{i}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^2-b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\text{Sec}[c+d\,x]}\,\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\mathbb{i}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^2-b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\right.$$

$$\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\ i\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\ 2\,i\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d\,x]}\left(-\frac{i\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\frac{\mathrm{Cos}[c+d\,x]\left(\frac{2\,a}{3}-\frac{8}{3}\,b\,\mathrm{Cot}[c+d\,x]-\frac{2}{3}\,a\,\mathrm{Csc}[c+d\,x]^2\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}$$

- **Problem 621: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{\mathrm{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 224 leaves, 10 steps):

$$-\frac{i\,(i\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{i\,(i\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{2\,a\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}-\frac{4\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,(5\,a^2-b^2)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4596 leaves):

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i b)^2 \,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-i b)^2 \,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}$$

$$\left(-\frac{a\, b\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}} - \frac{a\, b\, \text{Cos}[2(c+d x)]\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}} + \right.$$

$$\left.\frac{a^2\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}} - \frac{b^2\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}\right)$$

$$\left.(a+b\, \text{Tan}[c+d x])^{3/2}\right) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\, (a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x])^2\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}\; \text{Tan}[c+d x]^{3/2}} \sqrt{2}\; \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\, a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(-2\, i\, a\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + \right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(\sqrt{2}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{2}\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{2}\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}$$

$$3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{a\,b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\operatorname{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{\operatorname{Tan}[c+d\,x]}\right)+$$

$$\left(\operatorname{Cos}[c+d\,x]\left(\frac{4\,b}{5}+\frac{2\left(6\,a^2\operatorname{Cos}[c+d\,x]-b^2\operatorname{Cos}[c+d\,x]\right)\operatorname{Csc}[c+d\,x]}{5\,a}-\frac{4}{5}\,b\operatorname{Csc}[c+d\,x]^2-\frac{2}{5}\,a\operatorname{Cot}[c+d\,x]\operatorname{Csc}[c+d\,x]^2\right)\right.$$

$$\sqrt{\operatorname{Tan}[c+d\,x]}$$

$$\left.(a+b\operatorname{Tan}[c+d\,x])^{3/2}\right)\Big/\,(d$$

$$(a\operatorname{Cos}[c+d\,x]+b\operatorname{Sin}[c+d\,x]))$$

- **Problem 622: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\operatorname{Tan}[c+d\,x])^{3/2}}{\operatorname{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 266 leaves, 11 steps):

$$-\frac{(i\,a-b)^{3/2}\operatorname{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{\sqrt{a+b\operatorname{Tan}[c+d\,x]}}\right]}{d}-\frac{(i\,a+b)^{3/2}\operatorname{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{\sqrt{a+b\operatorname{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\sqrt{a+b\operatorname{Tan}[c+d\,x]}}{7\,d\operatorname{Tan}[c+d\,x]^{7/2}}-$$

$$\frac{16\,b\sqrt{a+b\operatorname{Tan}[c+d\,x]}}{35\,d\operatorname{Tan}[c+d\,x]^{5/2}}+\frac{2\left(35\,a^2-3\,b^2\right)\sqrt{a+b\operatorname{Tan}[c+d\,x]}}{105\,a\,d\operatorname{Tan}[c+d\,x]^{3/2}}+\frac{4\,b\left(70\,a^2+3\,b^2\right)\sqrt{a+b\operatorname{Tan}[c+d\,x]}}{105\,a^2\,d\sqrt{\operatorname{Tan}[c+d\,x]}}$$

Result (type 4, 4760 leaves):

$$\left(2\,i\sqrt{2}\,\operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\operatorname{Cos}[c+d\,x]\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\left(a^2-b^2\right)\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\mathrm{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\Bigg(\frac{a^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a^2\,\mathrm{Cos}[2(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b^2\,\mathrm{Cos}[2(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\Bigg)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\Bigg(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,\mathrm{i}\sqrt{2}\,\mathrm{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\Bigg(\left(a^2-b^2\right)\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(\mathbb{i}\,\sqrt{2}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a^2-b^2)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\mathbb{i}\,a\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left((a^2-b^2)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{2}\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\frac{1}{\sqrt{2}\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}}$$

$$3\,i\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]\right)^{3/2}\sqrt{\text{Tan}[c+d x]}}\,i\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\,2\,\mathrm{i}\,\sqrt{2}\;\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\left(a^2-b^2\right)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\,\mathrm{i}\,\sqrt{2}\;\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,2\,\mathbb{i}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathbb{i}\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}\,(a+\mathbb{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(\text{Cos}[c+d\,x]\left(-\frac{2\left(50\,a^2-3\,b^2\right)}{105\,a}+\frac{4\left(82\,a^2\,b\,\text{Cos}[c+d\,x]+3\,b^3\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{105\,a^2}+\frac{2\left(65\,a^2-3\,b^2\right)\text{Csc}[c+d\,x]^2}{105\,a}-\right.$$

$$\left.\frac{16}{35}\,b\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2-\frac{2}{7}\,a\,\text{Csc}[c+d\,x]^4\right)$$

$$\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\Bigg)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\right)$$

- **Problem 623: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 332 leaves, 16 steps):

$$\frac{(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{\left(5\,a^4+240\,a^2\,b^2-128\,b^4\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{64\,b^{3/2}\,d}-$$

$$\frac{(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{a\left(5\,a^2+112\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{64\,b\,d}-$$

$$\frac{\left(5\,a^2+48\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{96\,b\,d}-\frac{a\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{24\,b\,d}+\frac{\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{7/2}}{4\,b\,d}$$

Result (type 4, 85 894 leaves): Display of huge result suppressed!

- **Problem 624: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 277 leaves, 15 steps):

$$-\frac{i\,(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{5\,a\left(a^2-8\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{8\sqrt{b}\,d}-\frac{i\,(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+$$

$$\frac{\left(11\,a^2-8\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{8\,d}+\frac{13\,a\,b\,\text{Tan}[c+d\,x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{12\,d}+\frac{b^2\,\text{Tan}[c+d\,x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 75 543 leaves): Display of huge result suppressed!

Problem 625: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 231 leaves, 14 steps):

$$-\frac{(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{\sqrt{b}\,\left(15\,a^2-8\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{4\,d}+\frac{(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{9\,a\,b\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,d}+\frac{b^2\,\text{Tan}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,d}$$

Result (type 4, 70 144 leaves): Display of huge result suppressed!

Problem 626: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 188 leaves, 13 steps):

$$\frac{i\,(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{5\,a\,b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{i\,(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{b^2\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 65 421 leaves): Display of huge result suppressed!

Problem 627: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}}{\text{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 183 leaves, 13 steps):

$$\frac{(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{2\,b^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 60 093 leaves): Display of huge result suppressed!

Problem 628: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}}{\text{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 182 leaves, 9 steps) :

$$-\frac{i\,(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{i\,(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}-\frac{14\,a\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4835 leaves) :

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-i\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)^3\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(i\,a+b)^3\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{a^3\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a^3\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\frac{3\,a^2\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathrm{i}\,a+b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathbb{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-\mathbb{i}\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathbb{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(-\mathrm{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathrm{i}\,a+b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(-\mathrm{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(\mathrm{i}\,a+b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(\mathbb{i}\,a+b)^3$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(i\,a+b)^3$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{a\left(a^2-3\,b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{(a+i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(i\,a+b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{\text{Cos}[c+d\,x]^2\left(\frac{2\,a^2}{3}-\frac{14}{3}\,a\,b\,\text{Cot}[c+d\,x]-\frac{2}{3}\,a^2\,\text{Csc}[c+d\,x]^2\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}$$

Problem 629: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{\mathrm{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 219 leaves, 10 steps):

$$-\frac{(i\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{(i\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$
$$\frac{2\,a^2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}-\frac{22\,a\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,\left(15\,a^2-23\,b^2\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4853 leaves):

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(i\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$
$$(a+i\,b)^3\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$
$$\left.(a-i\,b)^3\,\mathrm{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$
$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{3\,a^2\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^3\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$
$$\frac{3\,a^2\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^3\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a^3 \,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\Bigg)$$

$$(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathrm{i}\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+i b)^3 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i b)^3 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\right)-$$

$$\left(a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(i b\left(-3 a^2+b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+i b)^3 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i b)^3 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i b)^3 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^3$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Sec}[c+d x]} \left(\frac{b\left(-3 a^2+b^2\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}} - \right.$$

$$\frac{i (a+i b)^3 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}} +$$

$$\left.\left.\left.\frac{i (a-i b)^3 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \sqrt{\text{Tan}[c+d x]}\right) +$$

$$\frac{\text{Cos}[c+d x]^2 \left(\frac{22 a b}{15}+\frac{2}{15}\left(18 a^2 \text{Cos}[c+d x]-23 b^2 \text{Cos}[c+d x]\right) \text{Csc}[c+d x]-\frac{22}{15} a b \text{Csc}[c+d x]^2-\frac{2}{5} a^2 \text{Cot}[c+d x] \text{Csc}[c+d x]^2\right)}{\sqrt{\text{Tan}[c+d x]}}$$

$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

- **Problem 630: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{\mathrm{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 270 leaves, 11 steps):

$$\frac{i\,(i\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{i\,(i\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a^2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{7\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}-$$
$$\frac{6\,a\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{7\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}+\frac{2\,(7\,a^2-9\,b^2)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{21\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,b\,(49\,a^2-3\,b^2)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{21\,a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4921 leaves):

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,a\,(a^2-3\,b^2)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$
$$(i\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$
$$\left.i\,(a-i\,b)^3\,\mathrm{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$
$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{a^3\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{a^3 \operatorname{Cos}[2\,(c+d\,x)]\,\operatorname{Csc}[c+d\,x]\,\sqrt{\operatorname{Sec}[c+d\,x]}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{2\,\sqrt{a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x]}}-\frac{3\,a\,b^2 \operatorname{Cos}[2\,(c+d\,x)]\,\operatorname{Csc}[c+d\,x]\,\sqrt{\operatorname{Sec}[c+d\,x]}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{2\,\sqrt{a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x]}}+$$

$$\left.\frac{3\,a^2\,b \operatorname{Csc}[c+d\,x]\,\sqrt{\operatorname{Sec}[c+d\,x]}\,\operatorname{Sin}[2\,(c+d\,x)]\,\sqrt{\operatorname{Tan}[c+d\,x]}}{2\,\sqrt{a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x]}}-\frac{b^3 \operatorname{Csc}[c+d\,x]\,\sqrt{\operatorname{Sec}[c+d\,x]}\,\operatorname{Sin}[2\,(c+d\,x)]\,\sqrt{\operatorname{Tan}[c+d\,x]}}{2\,\sqrt{a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b \operatorname{Tan}[c+d\,x])^{5/2}\right) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x])^3\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a \operatorname{Cos}[c+d\,x]+b \operatorname{Sin}[c+d\,x]}\,\operatorname{Tan}[c+d\,x]^{3/2}}\,2 \operatorname{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\,a\,\left(a^2-3\,b^2\right) \operatorname{EllipticF}\left[\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathbb{i}\,a-b)^3 \operatorname{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\mathbb{i}\,(a-\mathbb{i}\,b)^3 \operatorname{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \operatorname{Sec}[c+d\,x]^{5/2} \operatorname{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(i\,a-b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.i\,(a-i\,b)^3\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(i\,a-b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.i\,(a-i\,b)^3\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\mathrm{i}\,(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}}2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\, a-b)^3 \,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \mathrm{i}\,(a-\mathrm{i}\, b)^3 \,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\, (b \,\text{Cos}[c+d x]-a \,\text{Sin}[c+d x])\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}\, \sqrt{\text{Tan}[c+d x]}} 4 \,\text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\, \Bigg(\mathrm{i}\, a\left(a^2-3 b^2\right) \text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$(\mathrm{i}\, a-b)^3 \,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \mathrm{i}\,(a-\mathrm{i}\, b)^3$$

$$\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\, \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}\, \sqrt{\text{Tan}[c+d x]}} 2 \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,a\,(a^2-3\,b^2)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-i\,(a-i\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{a\,(a^2-3\,b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(i\,a-b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{(a-\mathrm{i}\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(\mathrm{Cos}[c+d\,x]^2\left(-\frac{2}{21}\left(10\,a^2-9\,b^2\right)+\frac{2\left(58\,a^2\,b\,\mathrm{Cos}[c+d\,x]-3\,b^3\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]}{21\,a}+\frac{2}{21}\left(13\,a^2-9\,b^2\right)\mathrm{Csc}[c+d\,x]^2-\right.\right.$$

$$\left.\frac{6}{7}\,a\,b\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2-\frac{2}{7}\,a^2\,\mathrm{Csc}[c+d\,x]^4\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right)$$

- **Problem 631: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{\mathrm{Tan}[c+d\,x]^{11/2}}\,dx$$

Optimal (type 3, 318 leaves, 12 steps):

$$\frac{(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a^2\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{9\,d\,\mathrm{Tan}[c+d\,x]^{9/2}}-\frac{38\,a\,b\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{63\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}+$$

$$\frac{2\left(21\,a^2-25\,b^2\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}+\frac{2\,b\left(231\,a^2-5\,b^2\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}-\frac{2\left(315\,a^4-483\,a^2\,b^2-10\,b^4\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a^2\,d\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4945 leaves):

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)^3 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(\frac{3 a^2 b \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{b^3 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\right.$$

$$\frac{3 a^2 b \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{b^3 \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-$$

$$\left.\frac{a^3 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{3 a b^2 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)$$

$$\left.(a+b \text{Tan}[c+d x])^{5/2}\right) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \text{Tan}[c+d x]^{3/2}} 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i b\left(-3 a^2+b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(-\mathrm{i}\,b\left(-3a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \Bigg(-\mathrm{i}\,b\left(-3a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\, b)^3 \,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\, b)^3 \,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-\mathrm{i}\, b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\, b)^3 \,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\, b)^3 \,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\Big[\frac{1}{2}\ (c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\mathrm{Cot}\big[\frac{1}{2}\ (c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\big[\frac{1}{2}\ (c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\ \Bigg(-i\,b\,\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\Bigg[i\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\ (c+d\,x)\big]}}\Bigg],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+i\,b)^3\,\mathrm{EllipticPi}\Bigg[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\ (c+d\,x)\big]}}\Bigg],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-i\,b)^3\,\mathrm{EllipticPi}\Bigg[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$i\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\ (c+d\,x)\big]}}\Bigg],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\Big[\frac{1}{2}\ (c+d\,x)\Big]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\Big[\frac{1}{2}\ (c+d\,x)\Big]\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\mathrm{Cot}\big[\frac{1}{2}\ (c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\big[\frac{1}{2}\ (c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\ \Bigg(-i\,b\,\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\Bigg[i\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\ (c+d\,x)\big]}}\Bigg],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+i\,b)^3\,\mathrm{EllipticPi}\Bigg[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\ (c+d\,x)\big]}}\Bigg],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-i\,b)^3$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\ \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}} 2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,b\left(-3 a^2+b^2\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)^3$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}} 4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d x]}\left(-\frac{b\left(-3 a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\text{Cos}[c+d\,x]^2\left(-\frac{2\,b\left(326\,a^2-5\,b^2\right)}{315\,a}-\frac{2\left(413\,a^4\,\text{Cos}[c+d\,x]-558\,a^2\,b^2\,\text{Cos}[c+d\,x]-10\,b^4\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{315\,a^2}+\right.\right.$$

$$\frac{2\,b\left(421\,a^2-5\,b^2\right)\text{Csc}[c+d\,x]^2}{315\,a}+\frac{2}{315}\left(133\,a^2\,\text{Cos}[c+d\,x]-75\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3-$$

$$\left.\frac{38}{63}\,a\,b\,\text{Csc}[c+d\,x]^4-\frac{2}{9}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\;(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)$$

- **Problem 632: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^{7/2}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 232 leaves, 14 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\;d}+\frac{\left(3\,a^2-8\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{4\,b^{5/2}\,d}+$$

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\;d}-\frac{3\,a\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,b^2\,d}+\frac{\text{Tan}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,b\,d}$$

Result (type 4, 11 359 leaves):

$$\Bigg(\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{1}{2-2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\sqrt{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{a^2+b^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\Bigg(\sqrt{a^2+b^2}\,\Bigg(-\frac{\left(3\,a^2-8\,b^2\right)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{8\,i\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8\,i\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\left(a^2+b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left.\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)$$

$$\left(-\frac{\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{8\,b^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\left.\frac{\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left(2\,b^2\,d\,\sqrt{-\frac{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right.$$

$$-\left(\left(\left(\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-b\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{\frac{1}{2-2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\right.\right.\right.$$

$$\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{\frac{a\,\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{a^2+b^2}}\,\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\,\left(-\frac{\left(3\,a^2-8\,b^2\right)\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8\,i\,b^2\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8\,i\,b^2\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-\left(3\,a\,\left(a^2+b^2\right)\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-\right.$$

$$\left.\left.a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/\left(2\,b^2\sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)+$$

$$\left(a\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{1}{2-2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}\ \sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\ \left(-\frac{\left(3\,a^2-8\,b^2\right)\ \mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\ -a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}\ -\right.\right.$$

$$\frac{8\,\mathrm{i}\,b^2\ \mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\ -a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\ +$$

$$\frac{8\,\mathrm{i}\,b^2\ \mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\ -a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\ +$$

$$\frac{3\,a^2\ \mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\ -a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\ -$$

$$\left.\left.\frac{8\,b^2\ \mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\ -a\,\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\ -$$

$$\left(3\,a\,(a^2+b^2)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Bigg/$$

$$\left.\left.\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\Bigg/\left(4\,b^2\,(a^2+b^2)\sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{1}{2-2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\left(-\frac{(3\,a^2-8\,b^2)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\left(a^2+b^2\right)\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left.\left.\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\Big/$$

$$\left(4\,b^2\sqrt{-\frac{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{2-2\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right.$$

$$\sqrt{\frac{a\left(a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\left(-\frac{\left(3\,a^2-8\,b^2\right)\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8\,i\,b^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8\,i\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\,(a^2+b^2)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left.\left.\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\Big/$$

$$\left(8\,b^2\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(\frac{1}{2-2 \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right)^{3/2} \sqrt{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right.$$

$$\sqrt{\frac{a\left(a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{a^2+b^2}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\left(-\frac{\left(3 a^2-8 b^2\right) \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8 i b^2 \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8 i b^2 \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3 a^2 \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\,\left(a^2+b^2\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\Big/$$

$$\left.\left.\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right)\right)\Big/$$

$$\left(2\,b^2\sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{1}{2-2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}\right.$$

$$\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\sqrt{a^2+b^2}\left(-\frac{\left(3 a^2-8 b^2\right) \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8 \mathrm{i} b^2 \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-\mathrm{i} a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i} a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8 \mathrm{i} b^2 \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{\mathrm{i} a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i} a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3 a^2 \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8 b^2 \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\,\left(a^2+b^2\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\,\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Big/$$

$$\left(\left(a^2+b\,\left(b+\sqrt{a^2+b^2}\right)-a\,\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\left(\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}\right)\Big/$$

$$\left(4\,b^2\,\left(-\frac{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\right)^{3/2}\,\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{1}{2-2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{\frac{a\,\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{a^2+b^2}}\right.$$

$$\left(\sqrt{a^2+b^2}\,\left(-\frac{\left(3\,a^2-8\,b^2\right)\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{8\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{8\,\mathrm{i}\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{3\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{8\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)-$$

$$\left(3\,a\,\left(a^2+b^2\right)\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]\,\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\Big/$$

$$\left.\left(a^2+b\,\left(b+\sqrt{a^2+b^2}\right)-a\,\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right)\left(\frac{b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(4 b^2 \sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\sqrt{\frac{a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\frac{1}{2-2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}\right.$$

$$\sqrt{\frac{a\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{a^2+b^2}} \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\left(3 a^2\left(a^2+b^2\right)^{3/2} \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right] \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right.\right.$$

$$\left.\left.\left(b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\right)\Big/\left(2\left(a^2+b\left(b+\sqrt{a^2+b^2}\right)-a\sqrt{a^2+b^2}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2\right)+$$

$$\frac{3 a^2 \left(a^2+b^2\right) \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right] \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{2 \left(a^2+b \left(b+\sqrt{a^2+b^2}\right)-a \sqrt{a^2+b^2} \text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}+\left(3 a^2 \sqrt{a^2+b^2} \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)\right) \Big/ \left(4 \sqrt{2} \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}} \left(a^2+b \left(b+\sqrt{a^2+b^2}\right)-\right.\right.$$

$$\left.\left.a \sqrt{a^2+b^2} \text{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)+$$

$$\sqrt{a^2+b^2} \left(\left(a \left(3 a^2-8 b^2\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right) \Big/ \left(4 \sqrt{2} \sqrt{a^2+b^2} \left(-a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\text{i} \sqrt{2} a b^2 \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right) \Big/ \left(\sqrt{a^2+b^2} \left(-\text{i} a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{-\text{i} a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(\text{i} \sqrt{2} a b^2 \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2\right) \Big/ \left(\sqrt{a^2+b^2} \left(\text{i} a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(3\,a^3\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(\sqrt{2}\,a\,b^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(2\,b^2\sqrt{-\frac{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\Bigg)\;\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)+$$

$$\frac{\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}\,\left(-\frac{3\,a}{4\,b^2}+\frac{\text{Tan}[c+d\,x]}{2\,b}\right)}{d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

- **Problem 633: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^{5/2}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 188 leaves, 13 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i\,a-b}\,d}-\frac{a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{b^{3/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i\,a+b}\,d}+\frac{\sqrt{\text{Tan}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}{b\,d}$$

Result (type 4, 7041 leaves):

$$\frac{\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\,\sqrt{\text{Tan}[c+d x]}}{b\,d\,\sqrt{a+b\,\text{Tan}[c+d x]}}+\left(2\sqrt{a^2+b^2}\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left(-\frac{a\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,b\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left(b\,d\,\sqrt{\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)-\left(\left(\sqrt{a^2+b^2}\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$\frac{a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^2$$

$$\left.\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left.\left(b\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\right)\right)+\left(a\sqrt{a^2+b^2}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\Bigg/$$

$$\left(2\,b\left(b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\right)-\left(\sqrt{a^2+b^2}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(b\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{b\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\sqrt{a^2+b^2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]$$

$$\Bigg(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\Bigg)\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}$$

$$\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\Bigg(\sqrt{a^2+b^2}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\right/$$

$$\left(b\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(2\sqrt{a^2+b^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\right.$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)+$$

$$\left(a^2\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(2\sqrt{2}\sqrt{a^2+b^2}\left(-i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)\Bigg)\Bigg/$$

$$\left(b\sqrt{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+\left(\sqrt{a^2+b^2}\right.$$

$$\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\right)\Big/$$

$$\left.\left.\left(b\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)\right)\right)$$

- **Problem 634: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^{3/2}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 152 leaves, 12 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{\text{i}\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{\text{i}\,a-b}\,d}+\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{b}\,d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{\text{i}\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{\text{i}\,a+b}\,d}$$

Result (type 4, 6090 leaves) :

$$\left(4\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\text{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\text{i}\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\text{i}\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}[c+d\,x]\right)\Big/$$

$$\left(d\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right.$$

$$\left(-\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^2\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\left(a\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\Bigg/$$

$$\left(\left(b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Tan}[c+d\,x]}\right)-\left(2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\ \left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a^2+b^2}}$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ \left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{a^2+b^2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\left(2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\right.$$

$$\left.\left.\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\right)\Big/$$

$$\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}}$$

$$4\sqrt{a^2+b^2}\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(-\left(a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a-\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\Bigg(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)+\Bigg(2\sqrt{a^2+b^2}$$

$$\Bigg(\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\Bigg)$$

$$\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)}{a^2+b^2}}\;\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left(-\text{Cos}\left[\frac{1}{2}(c+d x)\right]\text{Sec}[c+d x]\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]+\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]\,\text{Tan}[c+d x]\right)\right)\Big/$$

$$\left.\left.\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}\right)\right)\right)$$

- **Problem 635: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 115 leaves, 7 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\,d}$$

Result (type 4, 2766 leaves):

$$\left(2\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Big/$$

$$\left(d\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right.$$

$$\Bigg(-\Bigg(\Bigg(\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\Bigg(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\,\text{Tan}[c+d\,x]^{3/2}\Bigg)+$$

$$\Bigg(a\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\Bigg)\Bigg/$$

$$\Bigg(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/\Bigg((a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\left(2\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]^2\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\left(-\frac{a^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}\left(-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)^{3/2} \sqrt{\operatorname{Tan}[c+d x]}\right)+$$

$$\Bigg(2 \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x] \sqrt{1+\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg(\left(i a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \Bigg(4\left(b+\sqrt{a^2+b^2}\right)\left(1-i \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\sqrt{-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)-\left(i a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/$$

$$\Bigg(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)\Bigg)\Bigg) \Big/$$

$$\left(\sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}} \sqrt{\operatorname{Tan}[c+d x]}\right)\Bigg) \sqrt{a+b \operatorname{Tan}[c+d x]}\Bigg)$$

- **Problem 636: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{\operatorname{Tan}[c+d x]} \sqrt{a+b \operatorname{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 109 leaves, 7 steps):

$$\frac{\operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\, d}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\, d}$$

Result (type 4, 422 leaves):

$$\left(2\,i\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 637: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{3/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 147 leaves, 9 steps):

$$-\frac{i\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\,d}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\,d}-\frac{2\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 2820 leaves):

$$\left(2\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(d\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right.$$

$$\left(\left(\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\mathrm{Tan}[c+d\,x]^{3/2}\right)-$$

$$\left(a\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}[c+d\,x]\right)\Bigg/$$

$$\left(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}[c+d\,x]\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg/\;\Bigg((a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{\text{Tan}[c+d\,x]}\Bigg)\;-$$

$$\Bigg(2\,\Bigg(\text{EllipticPi}\left[-\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\;-$$

$$\text{EllipticPi}\left[\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg/$$

$$\Bigg(\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{\text{Tan}[c+d\,x]}\Bigg)\;-$$

$$\Bigg(\Bigg(\text{EllipticPi}\left[-\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]^2\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg/$$

$$\Bigg(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{\text{Tan}[c+d\,x]}\Bigg)\;+$$

$$\Bigg(\Bigg(\text{EllipticPi}\left[-\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\;-$$

$$\text{EllipticPi}\left[\frac{\text{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}[c+d\,x]$$

$$\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg(-\frac{a^2\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\left(-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(2\,\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg(\Big(\mathrm{i}\,a\,\mathrm{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\Bigg/\Bigg(4\,\Big(b+\sqrt{a^2+b^2}\Big)\,\Big(1-\mathrm{i}\,\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)$$

$$\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)-\Big(\mathrm{i}\,a\,\mathrm{Sec}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\Big)\Big/$$

$$\Bigg(4\,\Big(b+\sqrt{a^2+b^2}\Big)\,\Big(1+\mathrm{i}\,\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{\mathrm{Tan}[c+d\,x]}\Bigg)\Bigg)$$

$$\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\Bigg)-\frac{2\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\;\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

- **Problem 638: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{5/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 180 leaves, 10 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{\mathrm{i}\,a-b}\;d}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{\mathrm{i}\,a+b}\;d}-\frac{2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{4\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a^2\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 6033 leaves):

$$\frac{\left(\frac{2}{3a}+\frac{4\,b\,\text{Cot}[c+d\,x]}{3a^2}-\frac{2\,\text{Csc}[c+d\,x]^2}{3a}\right)\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}}{d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}-$$

$$\left(4\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left(\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^{3/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\left.\left(-\frac{\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\sqrt{\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,\sqrt{1+\text{Sec}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\mathrm{Sec}[c+d\,x]}\ (a+b\,\mathrm{Tan}[c+d\,x])^2}\,4\,i\,b\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Sec}[c+d\,x]^3\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\ (a+b\,\mathrm{Tan}[c+d\,x])}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}$$

$$\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^3\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\;+$$

$$\left(\mathrm{i}\,a\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}(a+b\,\mathrm{Tan}[c+d\,x])\right)+$$

$$\left(\mathrm{i}\,a\sqrt{\frac{1}{1+\mathrm{Cos}[c+d\,x]}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\Bigg(i\,\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\Bigg(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ (a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\Bigg(2\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\text{Sec}[c+d x]\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\text{Sec}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,(a+b\,\text{Tan}[c+d x])\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\text{Sec}[c+d x]}\,(a+b\,\text{Tan}[c+d x])}4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{1}{1+\text{Cos}[c+d x]}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d x]\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])}4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Sec}[c+d\,x]\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (1+\text{Sec}[c+d\,x])^{3/2}\ (a+b\,\text{Tan}[c+d\,x])}2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d\,x]^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \text{Tan}[c+d\,x]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])}2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\frac{1}{1+\text{Cos}[c+d\,x]}\right)^{3/2}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \text{Tan}[c+d\,x]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\text{Sec}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{1}{1+\text{Cos}[c+d\,x]}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\Bigg(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left.\text{Sec}[c+d\,x]\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \text{Tan}[c+d\,x]^{3/2}\right)\right)$$

■ **Problem 639: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\text{Tan}[c+d\,x]^{7/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 229 leaves, 11 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\ d} - \frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\ d} - \frac{2\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,a\,d\,\text{Tan}[c+d\,x]^{5/2}} + \frac{8\,b\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a^2\,d\,\text{Tan}[c+d\,x]^{3/2}} + \frac{2\left(15\,a^2-8\,b^2\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a^3\,d\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 2900 leaves):

$$\left(2\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\ \left.\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(d\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right.$$

$$\left(-\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.\right.$$

$$\dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}},\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\text{Tan}[c+d\,x]^{3/2}\right)+$$

$$\Bigg(a\,\Bigg(\text{EllipticPi}\left[-\frac{\dot{\imath}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{\dot{\imath}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\Bigg)\Bigg/$$

$$\left(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\Bigg(\Bigg(\text{EllipticPi}\left[-\frac{\dot{\imath}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{\dot{\imath}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/\left((a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(2\,\Bigg(\text{EllipticPi}\left[-\frac{\dot{\imath}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \dot{\imath}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{\text{Sec}[c+d x]}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\ \sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]^2\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\ \sqrt{\text{Tan}[c+d x]}\right)-$$

$$\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]$$

$$\left.\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\left(-\frac{a^2\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)\right)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\left(-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)^{3/2}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(2\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\ \sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\ \left(\left(i\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1-i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\right.\right.\right.$$

$$\left.\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-\left(i\,a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/$$

$$\left.\left.\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\right)\right)\Big/$$

$$\left.\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\ \sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\left(-\frac{8\,b}{15\,a^2}+\frac{4\left(9\,a^2\,\text{Cos}[c+d\,x]-4\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{15\,a^3}+\frac{8\,b\,\text{Csc}[c+d\,x]^2}{15\,a^2}-\frac{2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2}{5\,a}\right)\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}$$

- **Problem 640: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^{7/2}}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 250 leaves, 14 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}-\frac{3\,a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{b^{5/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}-$$

$$\frac{2\,a^2\,\text{Tan}[c+d\,x]^{3/2}}{b\,(a^2+b^2)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{(3\,a^2+b^2)\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b^2\,(a^2+b^2)\,d}$$

Result (type 4, 55 004 leaves): Display of huge result suppressed!

- **Problem 641: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^{5/2}}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 195 leaves, 13 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}+\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{b^{3/2}\,d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}-\frac{2\,a^2\,\sqrt{\text{Tan}[c+d\,x]}}{b\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 49 566 leaves): Display of huge result suppressed!

- **Problem 642: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^{3/2}}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 154 leaves, 8 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}+\frac{2\,a\,\sqrt{\text{Tan}[c+d\,x]}}{\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4626 leaves):

$$-\left(\left(2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a+b)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^2$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)\Bigg)\Big/$$

$$\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\Bigg(\Bigg(\sqrt{2}\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\text{EllipticF}\Big[\mathrm{i}$$

$$\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(-\mathrm{i}\,a-b)\,\text{EllipticPi}\Bigg[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(-\mathrm{i}\,a+b)\,\text{EllipticPi}\Bigg[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)$$

$$\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\Bigg)+$$

$$\Bigg(\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,a\,\text{EllipticF}\Bigg[\mathrm{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\Bigg[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\sqrt{2}\left(a^2+b^2\right)$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\Bigg)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right)+\Bigg(\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a-b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}$$

$$\left.\left.\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Sec}[c+d\,x]}\right.$$

$$\left(\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(-i\,a-b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(-i\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right/$$

$$\left.\left.\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^{3/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$
$$\left(\frac{2}{(a-i\,b)\,(a+i\,b)}-\right.$$
$$\left.\frac{2\,b\,\text{Sin}[c+d\,x]}{(a-i\,b)\,(a+i\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}$$

- **Problem 643: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 149 leaves, 8 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}-\frac{2\,b\,\sqrt{\text{Tan}[c+d\,x]}}{\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4628 leaves) :

$$\left(2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\left.\frac{b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\right)\left(-\left(\left(\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,b\,\text{EllipticF}\left[i\right.\right.\right.\right.\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\right)\right)-$$

$$\left(\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d x]}\right)\Big/$$

$$\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)-$$

$$\left(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d x]}\right)\right)\Big/\left(\sqrt{2}\,(a^2+b^2)\right.$$

$$\left.\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a - i b)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a + i b)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ \left.\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) \Big/$$

$$\left(\sqrt{2}\ (a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\ \text{Cos}[c+d x]+b\ \text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\left(\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\ \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\ a\ \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(i\ b\ \text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (a - i b)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a + i b)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}$$

$$\left.(b\ \text{Cos}[c+d x]-a\ \text{Sin}[c+d x])\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\ \text{Cos}[c+d x]+b\ \text{Sin}[c+d x])^{3/2}\ \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)$$

$$\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d\,x]}\left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)+\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$

$$\left(-\frac{2\,b}{a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)}+\frac{2\,b^2\,\text{Sin}[c+d\,x]}{a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$

Problem 644: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\text{Tan}[c+d x]}\,\left(a+b\,\text{Tan}[c+d x]\right)^{3/2}}\,dx$$

Optimal (type 3, 159 leaves, 8 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a-b)^{3/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a+b)^{3/2}\,d}+\frac{2\,b^2\,\sqrt{\text{Tan}[c+d x]}}{a\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4641 leaves):

$$-\Bigg(\Bigg(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$i\,(a+i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d x]^2$$

$$\left(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]\right)\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg(\frac{a\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)\,(a+i b)\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+$$

$$\frac{a\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)\,(a+i b)\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{b\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[2\,(c+d x)]\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)\,(a+i b)\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\;\Bigg(\Bigg(\sqrt{2}\;\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{1+\frac{a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\;\Bigg(-\mathrm{i}\,a\,\mathrm{EllipticF}\Big[\mathrm{i}$$

$$\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(\mathrm{i}\,a+b)\;\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+\mathrm{i}\,(a+\mathrm{i}\,b)\;\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\mathrm{Sec}[c+d\,x]^{5/2}\;\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{3/2}\Bigg)+$$

$$\Bigg(\sqrt{2}\;a\sqrt{1+\frac{a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\;\Bigg(-\mathrm{i}\,a\,\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(\mathrm{i}\,a+b)\;\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\;\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(a\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-i\,a\,\text{EllipticF}\Bigg[i\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(i\,a+b)\,\text{EllipticPi}\Bigg[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$i\,(a+i\,b)\,\text{EllipticPi}\Bigg[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(a^2+b^2\right)$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(3\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-i\,a\,\text{EllipticF}\Bigg[i\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(i\,a+b)\,\text{EllipticPi}\Bigg[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$\left.\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\Bigg/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$\text{Sin}\Big[\frac{1}{2}(c+d\,x)\Big]\,\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\Bigg)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\Bigg(\sqrt{2}\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-\mathrm{i}\,a\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}$$

$$\text{Sin}[c+d\,x]\,\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\Bigg)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+dx)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+dx]}\right.$$

$$\left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}-\right.$$

$$\frac{i\,(i\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}+$$

$$\left.\left.\frac{(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}\right)\Big/$$

$$\left(\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]}\sqrt{\text{Tan}[c+dx]}\right)\right)\sqrt{\text{Tan}[c+dx]}\,(a+b\,\text{Tan}[c+dx])^{3/2}\Bigg)\Bigg)+$$

$$\frac{1}{d\,(a+b\,\text{Tan}[c+dx])^{3/2}}\text{Sec}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2$$

$$\left(\frac{2\,b^2}{a^2\,(a-i\,b)\,(a+i\,b)}-\right.$$

$$\left.\frac{2\,b^3\,\text{Sin}[c+d\,x]}{a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)\sqrt{\text{Tan}[c+d\,x]}$$

Problem 645: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 193 leaves, 9 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a-b)^{3/2}\,d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a+b)^{3/2}\,d}-\frac{2}{a\,d\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}-\frac{2\,b\,\left(a^2+2\,b^2\right)\sqrt{\text{Tan}[c+d\,x]}}{a^2\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4629 leaves):

$$-\left(\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^2$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(-\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\left(\left(\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(\text{i}\ b\ \text{EllipticF}\left[\text{i}\right.\right.\right.\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-\text{i}\,b)\ \text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\text{i}\,b)\ \text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left.\text{Sec}[c+d x]^{5/2}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \text{Tan}[c+d x]^{3/2}\right)+$$

$$\left(\sqrt{2}\ a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(\text{i}\ b\ \text{EllipticF}\left[\text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-\text{i}\,b)\ \text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\text{i}\,b)\ \text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Bigg/\left(\left(a^2+b^2\right)\right.$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;\sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\left(a\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/\Bigg(\sqrt{2}\;\left(a^2+b^2\right)$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;\sqrt{\text{Tan}[c+d\,x]}\Bigg)-$$

$$\left(3\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Bigg/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (a - i\, b)\ \text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a + i\, b)\ \text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \sqrt{\text{Sec}[c+d\,x]}$$

$$\text{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg) \Big/ \left((a^2+b^2)\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right) -$$

$$\Bigg(\sqrt{2}\ \text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(i\, b\ \text{EllipticF}\Big[i\ \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (a - i\, b)\ \text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a + i\, b)\ \text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}[c+d\,x]^{3/2}$$

$$\text{Sin}[c+d\,x]\ \text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg) \Big/ \left((a^2+b^2)\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right) -$$

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Sec}[c+d\,x]}\right.$$

$$\left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left.\left.\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(-\frac{2\,b^3}{a^3\left(a^2+b^2\right)}-\right.$$

$$\left.\frac{2\,\text{Cot}[c+d\,x]}{a^2}+\frac{2\,b^4\,\text{Sin}[c+d\,x]}{a^3\,(a-i\,b)\,(a+i\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)\sqrt{\text{Tan}[c+d\,x]}$$

Problem 646: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 241 leaves, 10 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}-\frac{2}{3\,a\,d\,\text{Tan}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{8\,b}{3\,a^2\,d\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{2\,b^2\,(5\,a^2+8\,b^2)\,\sqrt{\text{Tan}[c+d\,x]}}{3\,a^3\,(a^2+b^2)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4681 leaves):

$$-\left(\left(2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-i\,a+b)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^2$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(-\frac{a\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\left(\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\right/$$

$$\left((a^2+b^2)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,\left(\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(i\,a\,\text{EllipticF}\left[i\right.\right.\right.\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-i\,a+b)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left.\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right/\left((a^2+b^2)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(\sqrt{2}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-i\,a-b)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-i a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,\sqrt{\text{Tan}[c+d x]}\Bigg)+$$

$$\Bigg(a\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(i a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-i a-b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-i a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg)\Bigg/\Bigg(\sqrt{2}\left(a^2+b^2\right)$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,\sqrt{\text{Tan}[c+d x]}\Bigg)-$$

$$\Bigg(3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(i a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \left.\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\right)+\left(\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,a-b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}$$

$$\left.\left.\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Sec}[c+d\,x]}\right.$$

$$\left(\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(-i\,a-b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(-i\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/$$

$$\left(\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Bigg)\Bigg)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\left(\frac{2\,(a^4+a^2\,b^2+3\,b^4)}{3\,a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)}+\frac{10\,b\,\mathrm{Cot}[c+d\,x]}{3\,a^3}-\frac{2\,\mathrm{Csc}[c+d\,x]^2}{3\,a^2}-\frac{2\,b^5\,\mathrm{Sin}[c+d\,x]}{a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}$$

- **Problem 647: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{9/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 317 leaves, 15 steps):

$$-\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a-b)^{5/2}\,d}-\frac{5\,a\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{b^{7/2}\,d}+\frac{\mathrm{i}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a+b)^{5/2}\,d}-\frac{2\,a^2\,\mathrm{Tan}[c+d\,x]^{5/2}}{3\,b\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,a^2\,(5\,a^2+11\,b^2)\,\mathrm{Tan}[c+d\,x]^{3/2}}{3\,b^2\,(a^2+b^2)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+\frac{(5\,a^4+10\,a^2\,b^2+b^4)\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{b^3\,(a^2+b^2)^2\,d}$$

Result (type 4, 81 109 leaves): Display of huge result suppressed!

- **Problem 648: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{7/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 251 leaves, 14 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a-b)^{5/2}\,d}+\frac{2\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{b^{5/2}\,d}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a+b)^{5/2}\,d}-\frac{2\,a^2\,\mathrm{Tan}[c+d\,x]^{3/2}}{3\,b\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,a^2\,(a^2+3\,b^2)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{b^2\,(a^2+b^2)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 75 781 leaves): Display of huge result suppressed!

Problem 649: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^{5/2}}{(a+b\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 214 leaves, 9 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a-b)^{5/2} d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a+b)^{5/2} d}-\frac{2 a^2 \sqrt{\text{Tan}[c+d x]}}{3 b \left(a^2+b^2\right) d\,(a+b\,\text{Tan}[c+d x])^{3/2}}+\frac{2 a \left(a^2+7 b^2\right) \sqrt{\text{Tan}[c+d x]}}{3 b \left(a^2+b^2\right)^2 d \sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4808 leaves):

$$-\left(\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(2 i a b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(-\frac{a b\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{a b\,\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\right.$$

$$\left.\left.\frac{a^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right)\left(\left(\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(2\,i\,a\,b\,\mathrm{EllipticF}\left[i\right.\right.\right.\right.$$

$$\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(\sqrt{2}\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\text{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)^2$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(2\,\text{i}\,a\,b\,\text{EllipticF}\Big[\text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a-\text{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\text{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\sqrt{2}\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(2\,\text{i}\,a\,b\,\text{EllipticF}\Big[\text{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(2\,\text{i}\,a\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)^2\ \text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\text{i}\,b)^2\ \text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.\text{Sin}\left[\frac{1}{2}\ (c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(2\,\text{i}\,a\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)^2\ \text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\text{i}\,b)^2\ \text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}$$

$$\left.\left.\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(\frac{a\,b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/$$

$$\left.\left.\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{14\,b}{3\,(a-i\,b)^2\,(a+i\,b)^2}-\right.$$
$$\frac{2\,a^2\,b}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$
$$\left.\frac{2\,\left(a^2\,\mathrm{Sin}[c+d\,x]-7\,b^2\,\mathrm{Sin}[c+d\,x]\right)}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}$$

Problem 650: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Tan}[c+d\,x]^{3/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 199 leaves, 9 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}+\frac{2\,a\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{4\,\left(a^2-2\,b^2\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4970 leaves):

$$-\left(\left(2\,i\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \text{Sec}[c+d x]^3$$

$$(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(-\frac{a^2 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2(a-i b)^2(a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\right.$$

$$\frac{b^2 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2(a-i b)^2(a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{a^2 \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2(a-i b)^2(a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\left.\left.\frac{b^2 \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2(a-i b)^2(a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{a b \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{(a-i b)^2(a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)\right) \Big/$$

$$\left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\right)\left(\left(i \sqrt{2} \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left((a^2-b^2) \text{EllipticF}\Big[i\right.\right.\right.$$

$$\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left.\text{Sec}[c+d x]^{5/2} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \text{Tan}[c+d x]^{3/2}\right)+$$

$$\left(i\sqrt{2}\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/\left(\left(a^2+b^2\right)^2\right.$$

$$\left.\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(i\,a\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/\left(\sqrt{2}\left(a^2+b^2\right)^2\right.$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\Bigg)-$$

$$\Bigg(3\,i\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\Bigg)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+\Bigg(i\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg) \Bigg/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2} \sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(2\, i \sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}$$

$$\text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg) \Bigg/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\left(i \sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] - (a-i\,b)^2\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a+i\,b)^2\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}[c+d\,x]^{3/2}$$

$$\text{Sin}[c+d\,x]\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg) \Bigg/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right) -$$

$$\Bigg(2\,i\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d\,x]}$$

$$\Bigg(-\frac{i\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}} +$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}} +$$

$$\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/$$

$$\left.\left.\left(\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$
$$\left(\frac{2\left(3\,a^2-4\,b^2\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,a\,b^2}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{8\left(a^2\,b\,\text{Sin}[c+d\,x]-b^3\,\text{Sin}[c+d\,x]\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}$$

- **Problem 651: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 211 leaves, 9 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}-\frac{2\,b\,\sqrt{\text{Tan}[c+d\,x]}}{3\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\left(5\,a^2-b^2\right)\sqrt{\text{Tan}[c+d\,x]}}{3\,a\left(a^2+b^2\right)^2 d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4829 leaves):

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^3$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(\frac{a\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\frac{a\,b\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\left.\frac{b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right.$$

$$\left(-\left(\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (a-\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}$$

$$\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\Bigg)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \text{Tan}[c+d\,x]^{3/2}\right)\Bigg) -$$

$$\left(\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] +\right.\right.$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$\left.\left.(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]}\ \sqrt{\text{Tan}[c+d\,x]}\right) -$$

$$\Bigg(a\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\Bigg(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Bigg/\Bigg(\sqrt{2}\,\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;\sqrt{\mathrm{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(3\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\Bigg(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\Bigg)\Bigg/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}$$

$$\left.\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(\frac{a\, b \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2 \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\, \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}} -\right.$$

$$\frac{i\,(a-i\,b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right) \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\, \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}} +$$

$$\left.\left.\frac{i\,(a+i\,b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right) \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\, \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right) \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right) \Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\, \text{Cos}[c+d\,x]+b\, \text{Sin}[c+d\,x]} \sqrt{\text{Tan}[c+d\,x]}\right)\right) \sqrt{\text{Tan}[c+d\,x]}\, (a+b\, \text{Tan}[c+d\,x])^{5/2}\right) +$$

$$\frac{1}{d\,(a+b\, \text{Tan}[c+d\,x])^{5/2}} \text{Sec}[c+d\,x]^3\, (a\, \text{Cos}[c+d\,x]+b\, \text{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\, b\left(6\, a^2-b^2\right)}{3\, a^2\,(a-i\,b)^2\,(a+i\,b)^2} - \right.$$

$$\frac{2\, b^3}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\, \text{Cos}[c+d\,x]+b\, \text{Sin}[c+d\,x])^2} +$$

$$\left.\frac{2\left(7\, a^2\, b^2\, \text{Sin}[c+d\,x]-b^4\, \text{Sin}[c+d\,x]\right)}{3\, a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\, \text{Cos}[c+d\,x]+b\, \text{Sin}[c+d\,x])}\right) \sqrt{\text{Tan}[c+d\,x]}$$

- **Problem 652: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{\text{Tan}[c+d\,x]}\,\left(a+b\,\text{Tan}[c+d\,x]\right)^{5/2}}\,dx$$

Optimal (type 3, 212 leaves, 9 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}+\frac{2\,b^2\,\sqrt{\text{Tan}[c+d\,x]}}{3\,a\,\left(a^2+b^2\right)\,d\,\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}}+\frac{4\,b^2\,\left(4\,a^2+b^2\right)\,\sqrt{\text{Tan}[c+d\,x]}}{3\,a^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4978 leaves):

$$\left(2\,i\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^2-b^2\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^3$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(\frac{a^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{b^2 \text{Cos}[2 (c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 (a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{a b \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2 (c+d x)] \sqrt{\text{Tan}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\Bigg)\Bigg) \Big/$$

$$\Bigg((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\Bigg(-\Bigg(\Bigg(i \sqrt{2} \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \Bigg((a^2-b^2) \text{EllipticF}\Big[i$$

$$\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-i b)^2 \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)^2 \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sec}[c+d x]^{5/2} \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}\Bigg) \Big/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \text{Tan}[c+d x]^{3/2}\right)\Bigg)-$$

$$\Bigg(i \sqrt{2} a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \Bigg((a^2-b^2) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\mathrm{i}\,a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/\left(\sqrt{2}\left(a^2+b^2\right)^2\right.$$

$$\left.\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(3\,\mathrm{i}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]}\Bigg)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\Bigg(\mathrm{i}\,\sqrt{2}\,\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(\left(a^2-b^2\right)\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\,i\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(i\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}$$

$$\left.\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right) \Big/ \left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\,i\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(-\frac{i\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right) \Big/$$

$$\left(\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(\frac{2\,b^2\,(9\,a^2+2\,b^2)}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2}+\right.$$
$$\frac{2\,b^4}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-$$
$$\left.\frac{4\,(5\,a^2\,b^3\,\mathrm{Sin}[c+d\,x]+b^5\,\mathrm{Sin}[c+d\,x])}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}$$

- **Problem 653: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 265 leaves, 10 steps):

$$\frac{i\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}-\frac{2}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-$$
$$\frac{2\,b\,(3\,a^2+4\,b^2)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\,(3\,a^4+17\,a^2\,b^2+8\,b^4)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^3\,(a^2+b^2)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4844 leaves):

$$-\left(\left(2\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$
$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg(-\frac{a\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ \Bigg(\Bigg(\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(2\,\mathrm{i}\,a\,b\,\text{EllipticF}\Big[\mathrm{i}$$

$$\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left.\text{Sec}[c+d x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\text{Tan}[c+d x]^{3/2}\right)+$$

$$\left(\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Big/\left((a^2+b^2)^2\right.$$

$$\left.\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/ \Bigg(\sqrt{2}\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\Bigg) -$$

$$\Bigg(3 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \Bigg(2 i a b \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\Bigg) \Bigg/$$

$$\Bigg(\sqrt{2}\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\Bigg)+$$

$$\Bigg(\sqrt{2} \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \Bigg(2 i a b \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (a-\mathrm{i}\, b)^2\, \mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a+\mathrm{i}\, b)^2\, \mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg) \Big/ \left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right) +$$

$$\Bigg(2\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] + (a-\mathrm{i}\, b)^2\, \mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a+\mathrm{i}\, b)^2\, \mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg) \Big/ \left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\right) -$$

$$\left(\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}$$

$$\left.\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(\frac{a\,b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a-i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left.\left.\left(\left(a^2+b^2\right)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{2\,b^3\,\left(12\,a^2+5\,b^2\right)}{3\,a^4\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,\mathrm{Cot}[c+d\,x]}{a^3}-\frac{2\,b^5}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{2\,\left(13\,a^2\,b^4\,\mathrm{Sin}[c+d\,x]+5\,b^6\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^4\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}$$

- **Problem 654: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Tan}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 298 leaves, 11 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}-\frac{2}{3\,a\,d\,\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+$$

$$\frac{4\,b}{a^2\,d\,\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,b^2\,\left(7\,a^2+8\,b^2\right)\,\sqrt{\text{Tan}[c+d\,x]}}{3\,a^3\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{4\,b^2\,\left(4\,a^4+15\,a^2\,b^2+8\,b^4\right)\,\sqrt{\text{Tan}[c+d\,x]}}{3\,a^4\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 5017 leaves) :

$$-\left(\left(2\,i\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^2-b^2\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^3$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{a^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\frac{b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\left.\frac{b^2 \operatorname{Cos}[2\,(c+d\,x)]\operatorname{Csc}[c+d\,x]\sqrt{\operatorname{Sec}[c+d\,x]}\sqrt{\operatorname{Tan}[c+d\,x]}}{2\,(a-i\,b)^2\,(a+i\,b)^2\sqrt{a\operatorname{Cos}[c+d\,x]+b\operatorname{Sin}[c+d\,x]}}+\frac{a\,b\operatorname{Csc}[c+d\,x]\sqrt{\operatorname{Sec}[c+d\,x]}\operatorname{Sin}[2\,(c+d\,x)]\sqrt{\operatorname{Tan}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\sqrt{a\operatorname{Cos}[c+d\,x]+b\operatorname{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right)\left(\left(i\sqrt{2}\operatorname{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left((a^2-b^2)\operatorname{EllipticF}\left[i\right.\right.\right.\right.$$

$$\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-(a-i\,b)^2\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\operatorname{Sec}[c+d\,x]^{5/2}\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\operatorname{Cos}[c+d\,x]+b\operatorname{Sin}[c+d\,x]}\operatorname{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(i\sqrt{2}\,a\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a^2-b^2)\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)^2\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Big/ \Bigg(\left(a^2+b^2\right)^2$$

$$\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\Bigg)+$$

$$\Bigg(i a \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \Bigg(\left(a^2-b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Big/ \Bigg(\sqrt{2}\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\Bigg)-$$

$$\Bigg(3 i \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \Bigg(\left(a^2-b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\left.\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)+\left(\mathrm{i}\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(2\,\mathrm{i}\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\mathrm{i}\,\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}$$

$$\left.\operatorname{Sin}[c+d x] \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}\right)-$$

$$\left(2\, i \sqrt{2} \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{2+\frac{2 a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\operatorname{Sec}[c+d x]}\right.$$

$$\left(-\frac{i\left(a^2-b^2\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i(a-i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\left.\frac{i(a+i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right) \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/$$

$$\left.\left.\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}\right)\right) \sqrt{\operatorname{Tan}[c+d x]}\,(a+b \operatorname{Tan}[c+d x])^{5/2}\right)\right)+$$

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,(a^6+2\,a^4\,b^2+16\,a^2\,b^4+8\,b^6)}{3\,a^5\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{16\,b\,\mathrm{Cot}[c+d\,x]}{3\,a^4}-\frac{2\,\mathrm{Csc}[c+d\,x]^2}{3\,a^3}+\frac{2\,b^6}{3\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{16\,(2\,a^2\,b^5\,\mathrm{Sin}[c+d\,x]+b^7\,\mathrm{Sin}[c+d\,x])}{3\,a^5\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\sqrt{\mathrm{Tan}[c+d\,x]}$$

Problem 655: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{2+3\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{3-2\,\mathrm{i}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{2+3\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,\mathrm{i}}\,d}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{3+2\,\mathrm{i}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{2+3\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,\mathrm{i}}\,d}$$

Result (type 4, 293 leaves):

$$\frac{1}{d\,\sqrt{2+3\,\mathrm{Tan}[c+d\,x]}}\,\mathrm{i}\,\sqrt{\frac{2}{3+\sqrt{13}}}\,\sqrt{3+\sqrt{13}+2\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{3+\sqrt{13}-\left(11+3\,\sqrt{13}\right)\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],-\frac{11}{2}-\frac{3\,\sqrt{13}}{2}\right]-\mathrm{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\,\left(3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{1}{2}\,\left(-11-3\,\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{2}\,\mathrm{i}\,\left(3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{1}{2}\,\left(-11-3\,\sqrt{13}\right)\right]\right)\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}$$

- **Problem 656: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{-2+3\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{3-2\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2+3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,i}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{3+2\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2+3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,i}\,d}$$

Result (type 4, 2739 leaves):

$$\left(2\,i\,\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\,\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,i\,\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11+3\,\sqrt{13}\right)\right]-\text{EllipticPi}\left[\frac{1}{2}\,i\,\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{1}{2}\left(-11+3\,\sqrt{13}\right)\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{1+\text{Sec}[c+d\,x]}$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}}+\frac{\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\right)\Bigg/\left(\sqrt{3+\sqrt{13}}\,d\,\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{-2+3\,\text{Tan}[c+d\,x]}\right.$$

$$\left(-\left(\left(\left(i\,\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\,\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,i\,\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{1}{2}\left(-11+\right.\right.\right.\right.\right.\right.\right.$$

$$3\sqrt{13}\Big)\Big] - \text{EllipticPi}\Big[\frac{1}{2}\, i \left(-3+\sqrt{13}\right),\, i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)\, \text{Sec}[c+d\,x]^2 \sqrt{1+\text{Sec}[c+d\,x]}$$

$$\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2} \sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg) \Bigg/ \left(\sqrt{3+\sqrt{13}}\, \sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\, \sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\, \text{Tan}[c+d\,x]^{3/2}\right)\Bigg) +$$

$$\Bigg(3\, i \Bigg(\text{EllipticF}\Big[i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, -\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big] - \text{EllipticPi}\Big[-\frac{1}{2}\, i \left(-3+\sqrt{13}\right),\, i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big] - \text{EllipticPi}\Big[\frac{1}{2}\, i \left(-3+\sqrt{13}\right),\, i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)$$

$$\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2 \sqrt{1+\text{Sec}[c+d\,x]}\, \sqrt{\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]}\, \sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg) \Bigg/$$

$$\left(2\sqrt{3+\sqrt{13}}\, \sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\, \sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\, \sqrt{\text{Tan}[c+d\,x]}\right) -$$

$$\Bigg(i \Bigg(\text{EllipticF}\Big[i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, -\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big] - \text{EllipticPi}\Big[-\frac{1}{2}\, i \left(-3+\sqrt{13}\right),\, i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big] - \text{EllipticPi}\Big[\frac{1}{2}\,i\left(-3+\sqrt{13}\right),\, i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\,\left(-3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x]\right)\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg)\Bigg/$$

$$\left(\sqrt{3+\sqrt{13}}\,\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\,\left(2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{3+\sqrt{13}}\,\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,i\,\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}$$

$$\Bigg(\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, -\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big] - \text{EllipticPi}\Big[-\frac{1}{2}\,i\left(-3+\sqrt{13}\right),\, i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big] - \text{EllipticPi}\Big[\frac{1}{2}\,i\left(-3+\sqrt{13}\right),\, i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\, \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\,\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\;+$$

$$\Bigg(2\,i\,\sqrt{1+\text{Sec}[c+d\,x]}\,\Bigg(-\frac{i\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{2\left(-3+\sqrt{13}\right)}\,\sqrt{1+\frac{2\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\,\sqrt{1+\frac{2\left(-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}} + \left(i\,\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\right)\Bigg/$$

$$\left(2\sqrt{2\left(-3+\sqrt{13}\right)}\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{2\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\sqrt{1+\frac{\left(-11+3\sqrt{13}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)+$$

$$\left(\mathrm{i}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^{2}\right)\Big/\left(2\sqrt{2\left(-3+\sqrt{13}\right)}\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{2\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\right.$$

$$\left.\left.\sqrt{1+\frac{\left(-11+3\sqrt{13}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{\frac{-2+3\,\mathrm{Tan}[c+d\,x]}{-1+\mathrm{Sec}[c+d\,x]}}\right)\Big/$$

$$\left(\sqrt{3+\sqrt{13}}\sqrt{\frac{1}{2+2\,\mathrm{Cos}[c+d\,x]}}\sqrt{2\,\mathrm{Cos}[c+d\,x]-3\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(\mathrm{i}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\mathrm{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]\right)$$

$$\left.\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\sqrt{\frac{-2+3\,\mathrm{Tan}[c+d\,x]}{-1+\mathrm{Sec}[c+d\,x]}}\right)\Big/$$

$$\left(\sqrt{3+\sqrt{13}}\sqrt{\frac{1}{2+2\,\mathrm{Cos}[c+d\,x]}}\sqrt{1+\mathrm{Sec}[c+d\,x]}\sqrt{2\,\mathrm{Cos}[c+d\,x]-3\,\mathrm{Sin}[c+d\,x]}\right)+$$

$$\left(\mathrm{i}\left(\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]-\text{EllipticPi}\left[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]\right)$$

$$\left.\sqrt{1+\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(\frac{3\,\text{Sec}[c+d\,x]^2}{-1+\text{Sec}[c+d\,x]}-\frac{\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\,(-2+3\,\text{Tan}[c+d\,x])}{(-1+\text{Sec}[c+d\,x])^2}\right)\right)\Big/$$

$$\left(\left(\sqrt{3+\sqrt{13}}\,\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\,\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\right)\right)$$

- **Problem 657: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{2-3\,\text{Tan}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{3-2\,\mathrm{i}}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,\mathrm{i}}\,d}+\frac{\text{ArcTan}\left[\frac{\sqrt{3+2\,\mathrm{i}}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,\mathrm{i}}\,d}$$

Result (type 4, 2739 leaves) :

$$\left(2\,\mathrm{i}\left(\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]-\text{EllipticPi}\Big[\frac{1}{2}\,\mathbb{i}\left(-3+\sqrt{13}\right),\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{1+\text{Sec}[c+d\,x]}$$

$$\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\left(\frac{\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}}+\frac{\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}}\right)$$

$$\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg)\Bigg/\Bigg(\sqrt{3+\sqrt{13}}\;d\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\;\sqrt{2-3\,\text{Tan}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}$$

$$\Bigg(-\Bigg(\Bigg(\mathbb{i}\Bigg(\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,-\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big]-\text{EllipticPi}\Big[-\frac{1}{2}\,\mathbb{i}\left(-3+\sqrt{13}\right),\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{1}{2}\Big(-11+$$

$$3\sqrt{13}\Big)\Big]-\text{EllipticPi}\Big[\frac{1}{2}\,\mathbb{i}\left(-3+\sqrt{13}\right),\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)\,\text{Sec}[c+d\,x]^2\sqrt{1+\text{Sec}[c+d\,x]}$$

$$\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg)\Bigg/\Bigg(\sqrt{3+\sqrt{13}}\,\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\,\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\Bigg)\Bigg)+$$

$$\Bigg(3\,\mathbb{i}\Bigg(\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,-\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big]-\text{EllipticPi}\Big[-\frac{1}{2}\,\mathbb{i}\left(-3+\sqrt{13}\right),\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]-\text{EllipticPi}\Big[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)$$

$$\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{1+\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]}\ \sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg)\Bigg/$$

$$\left(2\sqrt{3+\sqrt{13}}\ \sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\ \sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\Bigg(\mathrm{i}\Bigg(\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ -\frac{11}{2}+\frac{3\sqrt{13}}{2}\Big]-\text{EllipticPi}\Big[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],$$

$$\frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]-\text{EllipticPi}\Big[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{1}{2}\left(-11+3\sqrt{13}\right)\Big]\Bigg)$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\ \left(-3\,\text{Cos}[c+d\,x]-2\,\text{Sin}[c+d\,x]\right)\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\Bigg)\Bigg/$$

$$\left(\sqrt{3+\sqrt{13}}\ \sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\ \left(2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{3+\sqrt{13}}\ \sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\,\mathrm{i}\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,i\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]-\text{EllipticPi}\left[\frac{1}{2}\,i\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]\right)$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\;\text{Sin}[c+d\,x]\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\;+$$

$$\left(2\,i\sqrt{1+\text{Sec}[c+d\,x]}\left(-\frac{i\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{2\left(-3+\sqrt{13}\right)}\sqrt{1+\frac{2\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\sqrt{1+\frac{2\left(-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\left(i\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.\right.$$

$$\left(2\sqrt{2\left(-3+\sqrt{13}\right)}\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{2\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\sqrt{1+\frac{\left(-11+3\sqrt{13}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)+$$

$$\left(i\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2\left(-3+\sqrt{13}\right)}\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{2\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\right.$$

$$\left.\left.\left.\sqrt{1+\frac{\left(-11+3\sqrt{13}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{-3+\sqrt{13}}}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\right)\Big/$$

$$\left(\sqrt{3+\sqrt{13}}\ \sqrt{\frac{1}{2+2\,\mathrm{Cos}[c+d\,x]}}\ \sqrt{2\,\mathrm{Cos}[c+d\,x]-3\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(\mathrm{i}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\mathrm{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]\right)$$

$$\left.\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\ \sqrt{\frac{-2+3\,\mathrm{Tan}[c+d\,x]}{-1+\mathrm{Sec}[c+d\,x]}}\right)\Big/$$

$$\left(\sqrt{3+\sqrt{13}}\ \sqrt{\frac{1}{2+2\,\mathrm{Cos}[c+d\,x]}}\ \sqrt{1+\mathrm{Sec}[c+d\,x]}\ \sqrt{2\,\mathrm{Cos}[c+d\,x]-3\,\mathrm{Sin}[c+d\,x]}\right)+$$

$$\left(\mathrm{i}\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],-\frac{11}{2}+\frac{3\sqrt{13}}{2}\right]-\mathrm{EllipticPi}\left[-\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{2}\,\mathrm{i}\left(-3+\sqrt{13}\right),\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{2}{-3+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{1}{2}\left(-11+3\sqrt{13}\right)\right]\right)$$

$$\left.\sqrt{1+\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{3\,\mathrm{Sec}[c+d\,x]^2}{-1+\mathrm{Sec}[c+d\,x]}-\frac{\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]\,(-2+3\,\mathrm{Tan}[c+d\,x])}{(-1+\mathrm{Sec}[c+d\,x])^2}\right)\right)\Big/$$

$$\left.\left.\left(\sqrt{3+\sqrt{13}}\sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\sqrt{2\,\text{Cos}[c+d\,x]-3\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}\sqrt{\frac{-2+3\,\text{Tan}[c+d\,x]}{-1+\text{Sec}[c+d\,x]}}\right)\right)\right)$$

Problem 658: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{3-2\,i}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,i}\,d}+\frac{\text{ArcTan}\left[\frac{\sqrt{3+2\,i}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,i}\,d}$$

Result (type 4, 293 leaves):

$$\frac{1}{d\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\,i\sqrt{\frac{2}{3+\sqrt{13}}}\sqrt{3+\sqrt{13}+2\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{3+\sqrt{13}-\left(11+3\sqrt{13}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{11}{2}-\frac{3\sqrt{13}}{2}\right]-\text{EllipticPi}\left[-\frac{1}{2}\,i\left(3+\sqrt{13}\right),i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{2}\left(-11-3\sqrt{13}\right)\right]-\text{EllipticPi}\left[\frac{1}{2}\,i\left(3+\sqrt{13}\right),i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{2}{3+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{1}{2}\left(-11-3\sqrt{13}\right)\right]\right)\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}$$

Problem 659: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{\text{Tan}[c+d\,x]}\sqrt{3+2\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{2-3\,i}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3+2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,i}\,d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{2+3\,i}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3+2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,i}\,d}$$

Result (type 4, 318 leaves) :

$$\frac{1}{\sqrt{-2+\sqrt{13}}\,\left(2+\sqrt{13}\right)\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{3+2\,\mathrm{Tan}[c+d\,x]}}$$

$$4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{2+\sqrt{13}+3\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{6+3\,\sqrt{13}-\left(17+4\,\sqrt{13}\right)\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,-\frac{17}{9}-\frac{4\,\sqrt{13}}{9}\right]-\mathrm{EllipticPi}\left[-\frac{1}{3}\,\mathrm{i}\,\left(2+\sqrt{13}\right),\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{9}\,\left(-17-4\,\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{3}\,\mathrm{i}\,\left(2+\sqrt{13}\right),\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{1}{9}\,\left(-17-4\,\sqrt{13}\right)\right]\right)\,\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

- **Problem 660: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{3-2\,\mathrm{Tan}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps) :

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{2-3\,\mathrm{i}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{3-2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,\mathrm{i}}\,d}+\frac{\mathrm{ArcTan}\left[\frac{\sqrt{2+3\,\mathrm{i}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{3-2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,\mathrm{i}}\,d}$$

Result (type 4, 317 leaves) :

$$\frac{1}{\left(-2+\sqrt{13}\right)\sqrt{2+\sqrt{13}}\ d\sqrt{3-2\,\mathrm{Tan}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{-2+\sqrt{13}+3\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{-6+3\sqrt{13}+\left(-17+4\sqrt{13}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],-\frac{17}{9}+\frac{4\sqrt{13}}{9}\right]-\mathrm{EllipticPi}\left[-\frac{1}{3}\,\mathrm{i}\left(-2+\sqrt{13}\right),\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{9}\left(-17+4\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{3}\,\mathrm{i}\left(-2+\sqrt{13}\right),\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{1}{9}\left(-17+4\sqrt{13}\right)\right]\right)\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

- **Problem 661: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{\mathrm{Tan}[c+d\,x]}\ \sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps) :

$$\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{2-3\,\mathrm{i}}\ \sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,\mathrm{i}}\ d}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{2+3\,\mathrm{i}}\ \sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,\mathrm{i}}\ d}$$

Result (type 4, 317 leaves) :

$$\frac{1}{\left(-2+\sqrt{13}\right)\sqrt{2+\sqrt{13}}\;d\sqrt{\mathrm{Tan}[c+d\,x]}\;\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}$$

$$4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{-2+\sqrt{13}+3\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}\;\sqrt{-6+3\sqrt{13}+\left(-17+4\sqrt{13}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,-\frac{17}{9}+\frac{4\sqrt{13}}{9}\right]-\mathrm{EllipticPi}\left[-\frac{1}{3}\,\mathrm{i}\left(-2+\sqrt{13}\right),\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{9}\left(-17+4\sqrt{13}\right)\right]-\mathrm{EllipticPi}\left[\frac{1}{3}\,\mathrm{i}\left(-2+\sqrt{13}\right),\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{3}{-2+\sqrt{13}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{1}{9}\left(-17+4\sqrt{13}\right)\right]\right)\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

- **Problem 662: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{-3-2\,\mathrm{Tan}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 89 leaves, 7 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{2-3\,\mathrm{i}}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3-2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,\mathrm{i}}\;d}+\frac{\mathrm{ArcTan}\left[\frac{\sqrt{2+3\,\mathrm{i}}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3-2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,\mathrm{i}}\;d}$$

Result (type 4, 318 leaves):

$$\frac{1}{\sqrt{-2+\sqrt{13}}\,\left(2+\sqrt{13}\right)\,d\,\sqrt{-3-2\,\text{Tan}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{2+\sqrt{13}+3\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{6+3\,\sqrt{13}-\left(17+4\,\sqrt{13}\right)\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,-\frac{17}{9}-\frac{4\,\sqrt{13}}{9}\right]-\text{EllipticPi}\left[-\frac{1}{3}\,i\,\left(2+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{1}{9}\,\left(-17-4\,\sqrt{13}\right)\right]-\text{EllipticPi}\left[\frac{1}{3}\,i\,\left(2+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{3}{2+\sqrt{13}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{1}{9}\,\left(-17-4\,\sqrt{13}\right)\right]\right)\,\text{Sec}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

- **Problem 663: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{2+3\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{3-2\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{2+3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,i}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{3+2\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{2+3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,i}\,d}$$

Result (type 4, 257 leaves):

$$-\frac{1}{d\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{2+3\,\text{Tan}[c+d\,x]}}$$

$$2\,\sqrt{\frac{2}{-3+\sqrt{13}}}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(\text{EllipticPi}\left[-\frac{1}{2}\,i\,\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\sqrt{\frac{2}{-3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\,\frac{1}{2}\,\left(-11+3\,\sqrt{13}\right)\right]-\right.$$

$$\left.\text{EllipticPi}\left[\frac{1}{2}\,i\,\left(-3+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\sqrt{\frac{2}{-3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\,\frac{1}{2}\,\left(-11+3\,\sqrt{13}\right)\right]\right)$$

$$\text{Sec}[c+d\,x]\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{-3+\sqrt{13}+2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{-3+\sqrt{13}+\left(-11+3\,\sqrt{13}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}$$

- **Problem 664: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d x]}}{\sqrt{-2+3 \text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$-\frac{i \text{ArcTanh}\left[\frac{\sqrt{3-2 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{-2+3 \text{Tan}[c+d x]}}\right]}{\sqrt{3-2 i} \, d}+\frac{i \text{ArcTanh}\left[\frac{\sqrt{3+2 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{-2+3 \text{Tan}[c+d x]}}\right]}{\sqrt{3+2 i} \, d}$$

Result (type 4, 273 leaves):

$$\frac{1}{\sqrt{3+\sqrt{13}} \, d \sqrt{\frac{1}{2+2 \text{Cos}[c+d x]}} \sqrt{\text{Tan}[c+d x]} \sqrt{-2+3 \text{Tan}[c+d x]}}$$
$$\left(-\text{EllipticPi}\left[-\frac{1}{2} i \left(3+\sqrt{13}\right), i \text{ArcSinh}\left[\sqrt{\frac{2}{3+\sqrt{13}}} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right], \frac{1}{2}\left(-11-3 \sqrt{13}\right)\right]+\right.$$
$$\left.\text{EllipticPi}\left[\frac{1}{2} i \left(3+\sqrt{13}\right), i \text{ArcSinh}\left[\sqrt{\frac{2}{3+\sqrt{13}}} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right], \frac{1}{2}\left(-11-3 \sqrt{13}\right)\right]\right) \sqrt{\text{Sec}[c+d x]}$$
$$\sqrt{1+\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{3+\sqrt{13}+2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{3+\sqrt{13}-\left(11+3 \sqrt{13}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]}$$

- **Problem 665: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d x]}}{\sqrt{2-3 \text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$-\frac{i \text{ArcTan}\left[\frac{\sqrt{3-2 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{2-3 \text{Tan}[c+d x]}}\right]}{\sqrt{3-2 i} \, d}+\frac{i \text{ArcTan}\left[\frac{\sqrt{3+2 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{2-3 \text{Tan}[c+d x]}}\right]}{\sqrt{3+2 i} \, d}$$

Result (type 4, 273 leaves):

$$\frac{1}{\sqrt{3+\sqrt{13}}\, d\, \sqrt{\frac{1}{2+2\,\text{Cos}[c+d\,x]}}\, \sqrt{2-3\,\text{Tan}[c+d\,x]}\, \sqrt{\text{Tan}[c+d\,x]}}$$

$$\left(-\text{EllipticPi}\left[-\frac{1}{2}\,\mathbb{i}\,\left(3+\sqrt{13}\right),\, \mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{2}{3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\, \frac{1}{2}\,\left(-11-3\,\sqrt{13}\right)\right]+\right.$$

$$\left.\text{EllipticPi}\left[\frac{1}{2}\,\mathbb{i}\,\left(3+\sqrt{13}\right),\, \mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{2}{3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\, \frac{1}{2}\,\left(-11-3\,\sqrt{13}\right)\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{1+\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{3+\sqrt{13}+2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{3+\sqrt{13}-\left(11+3\,\sqrt{13}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}$$

- **Problem 666: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\, dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$\frac{\mathbb{i}\,\text{ArcTan}\left[\frac{\sqrt{3-2\,\mathbb{i}}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3-2\,\mathbb{i}}\,d}-\frac{\mathbb{i}\,\text{ArcTan}\left[\frac{\sqrt{3+2\,\mathbb{i}}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{-2-3\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{3+2\,\mathbb{i}}\,d}$$

Result (type 4, 257 leaves):

$$-\frac{1}{d\,\sqrt{-2-3\,\text{Tan}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$2\,\sqrt{\frac{2}{-3+\sqrt{13}}}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\text{EllipticPi}\left[-\frac{1}{2}\,\mathbb{i}\,\left(-3+\sqrt{13}\right),\, \mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{2}{-3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\, \frac{1}{2}\,\left(-11+3\,\sqrt{13}\right)\right]-\right.$$

$$\left.\text{EllipticPi}\left[\frac{1}{2}\,\mathbb{i}\,\left(-3+\sqrt{13}\right),\, \mathbb{i}\,\text{ArcSinh}\left[\sqrt{\frac{2}{-3+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right],\, \frac{1}{2}\,\left(-11+3\,\sqrt{13}\right)\right]\right)$$

$$\text{Sec}[c+d\,x]\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{-3+\sqrt{13}+2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{-3+\sqrt{13}+\left(-11+3\,\sqrt{13}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}$$

- **Problem 667: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3+2\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{2-3\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3+2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,i}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{2+3\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3+2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,i}\,d}$$

Result (type 4, 257 leaves):

$$-\frac{1}{3\sqrt{-2+\sqrt{13}}\,d\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{3+2\,\text{Tan}[c+d\,x]}}$$
$$4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{EllipticPi}\left[-\frac{1}{3}\,i\left(-2+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\sqrt{\frac{3}{-2+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\,\frac{1}{9}\left(-17+4\sqrt{13}\right)\right]-\right.$$
$$\left.\text{EllipticPi}\left[\frac{1}{3}\,i\left(-2+\sqrt{13}\right),\,i\,\text{ArcSinh}\left[\sqrt{\frac{3}{-2+\sqrt{13}}}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\,\frac{1}{9}\left(-17+4\sqrt{13}\right)\right]\right)$$
$$\text{Sec}[c+d\,x]\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{-2+\sqrt{13}+3\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{-6+3\sqrt{13}+\left(-17+4\sqrt{13}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

- **Problem 668: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3-2\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{2-3\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3-2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,i}\,d}+\frac{i\,\text{ArcTan}\left[\frac{\sqrt{2+3\,i}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{3-2\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,i}\,d}$$

Result (type 4, 258 leaves):

$$-\frac{1}{3\sqrt{2+\sqrt{13}}\, d\sqrt{3-2\,\mathrm{Tan}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}} 4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(\mathrm{EllipticPi}\left[-\frac{1}{3}\,i\left(2+\sqrt{13}\right),\, i\,\mathrm{ArcSinh}\left[\sqrt{\frac{3}{2+\sqrt{13}}}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\, \frac{1}{9}\left(-17-4\sqrt{13}\right)\right] - \mathrm{EllipticPi}\left[\frac{1}{3}\,i\left(2+\sqrt{13}\right),\, i\,\mathrm{ArcSinh}\left[\sqrt{\frac{3}{2+\sqrt{13}}}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\, \frac{1}{9}\left(-17-4\sqrt{13}\right)\right]\right) \mathrm{Sec}[c+d\,x]\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{2+\sqrt{13}+3\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{6+3\sqrt{13}-\left(17+4\sqrt{13}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

- **Problem 669: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\, dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{2-3\,i}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2-3\,i}\,d}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{2+3\,i}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{2+3\,i}\,d}$$

Result (type 4, 258 leaves):

$$-\frac{1}{3\sqrt{2+\sqrt{13}}\, d\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{-3+2\,\mathrm{Tan}[c+d\,x]}} 4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \left(\mathrm{EllipticPi}\left[-\frac{1}{3}\,i\left(2+\sqrt{13}\right),\, i\,\mathrm{ArcSinh}\left[\sqrt{\frac{3}{2+\sqrt{13}}}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\, \frac{1}{9}\left(-17-4\sqrt{13}\right)\right] - \mathrm{EllipticPi}\left[\frac{1}{3}\,i\left(2+\sqrt{13}\right),\, i\,\mathrm{ArcSinh}\left[\sqrt{\frac{3}{2+\sqrt{13}}}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right],\, \frac{1}{9}\left(-17-4\sqrt{13}\right)\right]\right) \mathrm{Sec}[c+d\,x]\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{2+\sqrt{13}+3\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{6+3\sqrt{13}-\left(17+4\sqrt{13}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

- **Problem 670: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\text{Tan}[c+d x]}}{\sqrt{-3-2 \text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 95 leaves, 7 steps):

$$\frac{i \text{ArcTan}\left[\frac{\sqrt{2-3 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{-3-2 \text{Tan}[c+d x]}}\right]}{\sqrt{2-3 i} \, d}-\frac{i \text{ArcTan}\left[\frac{\sqrt{2+3 i} \sqrt{\text{Tan}[c+d x]}}{\sqrt{-3-2 \text{Tan}[c+d x]}}\right]}{\sqrt{2+3 i} \, d}$$

Result (type 4, 257 leaves):

$$-\frac{1}{3 \sqrt{-2+\sqrt{13}} \, d \sqrt{-3-2 \text{Tan}[c+d x]} \sqrt{\text{Tan}[c+d x]}}$$
$$4 \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \left(\text{EllipticPi}\left[-\frac{1}{3} i \left(-2+\sqrt{13}\right), i \text{ArcSinh}\left[\sqrt{\frac{3}{-2+\sqrt{13}}} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right], \frac{1}{9} \left(-17+4 \sqrt{13}\right)\right]-\right.$$
$$\left.\text{EllipticPi}\left[\frac{1}{3} i \left(-2+\sqrt{13}\right), i \text{ArcSinh}\left[\sqrt{\frac{3}{-2+\sqrt{13}}} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right], \frac{1}{9} \left(-17+4 \sqrt{13}\right)\right]\right)$$
$$\text{Sec}[c+d x] \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{-2+\sqrt{13}+3 \text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{-6+3 \sqrt{13}+\left(-17+4 \sqrt{13}\right) \text{Tan}\left[\frac{1}{2} (c+d x)\right]}$$

- **Problem 675: Mathematica result simpler than optimal antiderivative, IF it can be verified!**

$$\int \frac{\text{Tan}[c+d x]^{4/3}}{\sqrt{a+b \text{Tan}[c+d x]}} \, dx$$

Optimal (type 6, 163 leaves, 9 steps):

$$\frac{3 \text{AppellF1}\left[\frac{7}{3}, 1, \frac{1}{2}, \frac{10}{3}, -i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{7/3} \sqrt{1+\frac{b \text{Tan}[c+d x]}{a}}}{14 d \sqrt{a+b \text{Tan}[c+d x]}}+$$
$$\frac{3 \text{AppellF1}\left[\frac{7}{3}, 1, \frac{1}{2}, \frac{10}{3}, i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{7/3} \sqrt{1+\frac{b \text{Tan}[c+d x]}{a}}}{14 d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 20 956 leaves): Display of huge result suppressed!

Problem 676: Mathematica result simpler than optimal antiderivative, IF it can be verified!

$$\int \frac{\text{Tan}[c+d x]^{2/3}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\,dx$$

Optimal (type 6, 163 leaves, 9 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{5}{3},1,\frac{1}{2},\frac{8}{3},-i\,\text{Tan}[c+d x],-\frac{b\,\text{Tan}[c+d x]}{a}\right]\text{Tan}[c+d x]^{5/3}\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}{10\,d\sqrt{a+b\,\text{Tan}[c+d x]}}+\frac{3\,\text{AppellF1}\left[\frac{5}{3},1,\frac{1}{2},\frac{8}{3},i\,\text{Tan}[c+d x],-\frac{b\,\text{Tan}[c+d x]}{a}\right]\text{Tan}[c+d x]^{5/3}\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}{10\,d\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 6751 leaves):

$$\frac{\left(\frac{1}{b}+\frac{\text{Cos}[2(c+d x)]}{b}\right)\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\,\text{Tan}[c+d x]^{2/3}}{d\sqrt{a+b\,\text{Tan}[c+d x]}}+$$

$$\Bigg(\text{Sec}[c+d x]\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\left(-\frac{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}{3\,b\,\text{Tan}[c+d x]^{1/3}}-\right.$$

$$\left.\frac{\text{Cos}[3(c+d x)]\,\text{Csc}[c+d x]\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\;\text{Tan}[c+d x]^{2/3}}{b}\right)\left(-\frac{3\,\text{Tan}[c+d x]^{2/3}\sqrt{\frac{a+b\,\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}}}{2\left(1+\text{Tan}[c+d x]^2\right)^{3/4}}-\right.$$

$$\frac{1}{2\sqrt{\frac{a+b\,\text{Tan}[c+d x]}{\sqrt{1+\text{Tan}[c+d x]^2}}}\left(1+\text{Tan}[c+d x]^2\right)^{1/4}}\,3\,a^{1/3}\,b\left(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\,a^{1/3}+b^{1/3}\right)}-$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(-i\,a^{1/3}+b^{1/3}\right)}+$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}-$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\left.\left.\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\,\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\right)\right)\Big/$$

$$\left(d\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\left(\frac{9\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]^{5/3}\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}}{4\left(1+\text{Tan}[c+d\,x]^2\right)^{7/4}}+\frac{1}{4\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\left(1+\text{Tan}[c+d\,x]^2\right)^{5/4}}\right.\right.$$

$$3\,a^{1/3}\,b\left(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\,a^{1/3}+b^{1/3}\right)}-$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(-i\,a^{1/3}+b^{1/3}\right)}+$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}-$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\text{Sec}[c+d\,x]^2\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\ \text{Tan}[c+d\,x]-$$

$$\frac{\text{Sec}[c+d\,x]^2\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}}{\text{Tan}[c+d\,x]^{1/3}\left(1+\text{Tan}[c+d\,x]^2\right)^{3/4}}-\left(3\,a^{1/3}\,b\left(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\,a^{1/3}+b^{1/3}\right)}-$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(-i\,a^{1/3}+b^{1/3}\right)}+$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}-$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\left(\left(-\frac{b^{1/3}\,\text{Sec}[c+d\,x]^2}{3\,a^{1/3}\,\text{Tan}[c+d\,x]^{2/3}}+\frac{2\,b^{2/3}\,\text{Sec}[c+d\,x]^2}{3\,a^{2/3}\,\text{Tan}[c+d\,x]^{1/3}}\right)\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right)\Bigg/$$

$$\left(4\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\ \sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}\right)-\frac{1}{2\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}}$$

$$3\,a^{1/3}\,b\left(\left((-1)^{2/3}b^{1/3}\,\text{Sec}[c+d\,x]^2\right)\Bigg/\left(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right.\right.$$

$$\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\left(1-\frac{\left(i+(-1)^{1/6}\right)\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6}a^{1/3}-b^{1/3}\right)}\right)$$

$$\left.\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \text{Tan}[c+d\,x]^{2/3}\right)+\left((-1)^{2/3}b^{1/3}\,\text{Sec}[c+d\,x]^2\right)\Bigg/$$

$$\left(6\left(1+(-1)^{1/3}\right)\left(i+\sqrt{3}\right)a^{1/3}\left(i\,a^{1/3}+b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right.$$

$$\left(1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}-\mathrm{i}\,b^{1/3}}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\Bigg)+\left((-1)^{1/3}b^{1/3}\,\mathrm{Sec}[c+d\,x]^2\right)\Big/$$

$$\Bigg(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}-\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left(1-\frac{\mathrm{i}\sqrt{3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/3}a^{1/3}-\mathrm{i}\,b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\Bigg)+$$

$$\left((-1)^{2/3}b^{1/3}\,\mathrm{Sec}[c+d\,x]^2\right)\Big/\Bigg(6\left(1+(-1)^{1/3}\right)\left(\mathrm{i}+\sqrt{3}\right)a^{1/3}\left(-\mathrm{i}\,a^{1/3}+b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\left(1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}+\mathrm{i}\,b^{1/3}}\right)$$

$$\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\Bigg)-\left((-1)^{1/3}b^{1/3}\,\mathrm{Sec}[c+d\,x]^2\right)\Big/$$

$$\Bigg(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}+\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left(1-\frac{\mathrm{i}\sqrt{3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/3}a^{1/3}+\mathrm{i}\,b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\Bigg)-$$

$$\left((-1)^{2/3}b^{1/3}\,\mathrm{Sec}[c+d\,x]^2\right)\Big/\Bigg(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}+\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\left(1-\frac{\left(\mathrm{i}+(-1)^{1/6}\right)\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6}a^{1/3}+b^{1/3}\right)}\right)$$

$$\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \text{Tan}[c+d\,x]^{2/3}\Bigg)\Bigg)\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\ -\Bigg(b^{4/3}\Bigg(\frac{\text{EllipticPi}\left[\frac{\left(\mathbb{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}\,a^{1/3}-b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathbb{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathbb{i}\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(\mathbb{i}+\sqrt{3}\right)\left(\mathbb{i}\,a^{1/3}+b^{1/3}\right)}-$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\mathbb{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}\,a^{1/3}-\mathbb{i}\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathbb{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+\mathbb{i}\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(\mathbb{i}+\sqrt{3}\right)\left(-\mathbb{i}\,a^{1/3}+b^{1/3}\right)}+$$

$$\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\mathbb{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}\,a^{1/3}+\mathbb{i}\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(\mathbb{i}+\sqrt{3}\right)b^{1/3}}-$$

$$\frac{\text{EllipticPi}\left[\frac{\left(\mathbb{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}\,a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}\,b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(-\mathbb{i}+\sqrt{3}\right)b^{1/3}}\Bigg)$$

$$\text{Sec}[c+d\,x]^2\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\Bigg)\Big/$$

$$\left(4\left(1+(-1)^{1/3}\right)\sqrt{\frac{a^{1/3}+b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}}\left(1+\mathrm{Tan}[c+d\,x]^2\right)^{1/4}\right)-$$

$$\frac{3\,\mathrm{Tan}[c+d\,x]^{2/3}\left(-\frac{\mathrm{Sec}[c+d\,x]^2\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])}{\left(1+\mathrm{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{b\,\mathrm{Sec}[c+d\,x]^2}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}\right)}{4\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}}\left(1+\mathrm{Tan}[c+d\,x]^2\right)^{3/4}}+$$

$$\frac{1}{4\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{1+\mathrm{Tan}[c+d\,x]^2}}\right)^{3/2}\left(1+\mathrm{Tan}[c+d\,x]^2\right)^{1/4}}$$

$$3\,a^{1/3}\,b\left(\frac{\mathrm{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathrm{i}+\sqrt{3}\right)\left(\mathrm{i}\,a^{1/3}+b^{1/3}\right)}-$$

$$\frac{(-1)^{2/3}\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathrm{i}+\sqrt{3}\right)\left(-\mathrm{i}\,a^{1/3}+b^{1/3}\right)}+$$

$$\frac{(-1)^{2/3}\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}-$$

$$\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right) a^{1/3}}{(-1)^{1/6} a^{1/3}+b^{1/3}}, \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right) a^{1/3}}}\right], (-1)^{1/3}\right]}{2 a^{1/3}+\left(-i+\sqrt{3}\right) b^{1/3}}\Bigg) \sqrt{\frac{a^{1/3}+b^{1/3} \text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right) a^{1/3}}}$$

$$\sqrt{1-\frac{b^{1/3} \text{Tan}[c+d x]^{1/3}}{a^{1/3}}+\frac{b^{2/3} \text{Tan}[c+d x]^{2/3}}{a^{2/3}}} \left(-\frac{\text{Sec}[c+d x]^2 \text{Tan}[c+d x] (a+b \text{Tan}[c+d x])}{\left(1+\text{Tan}[c+d x]^2\right)^{3/2}}+\frac{b \text{Sec}[c+d x]^2}{\sqrt{1+\text{Tan}[c+d x]^2}}\right)\Bigg)\Bigg)$$

Problem 677: Mathematica result simpler than optimal antiderivative, IF it can be verified!

$$\int \frac{\text{Tan}[c+d x]^{1/3}}{\sqrt{a+b \text{Tan}[c+d x]}} \, dx$$

Optimal (type 6, 163 leaves, 9 steps) :

$$\frac{3 \text{AppellF1}\left[\frac{4}{3}, 1, \frac{1}{2}, \frac{7}{3}, -i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{4/3} \sqrt{1+\frac{b \text{Tan}[c+d x]}{a}}}{8 d \sqrt{a+b \text{Tan}[c+d x]}}+$$

$$\frac{3 \text{AppellF1}\left[\frac{4}{3}, 1, \frac{1}{2}, \frac{7}{3}, i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{4/3} \sqrt{1+\frac{b \text{Tan}[c+d x]}{a}}}{8 d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 6316 leaves) :

$$\Bigg(2 (-1)^{5/6} a^{1/3} \Bigg(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right) a^{1/3}}{(-1)^{1/6} a^{1/3}-b^{1/3}}, \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right) a^{1/3}}}\right], (-1)^{1/3}\right]}{2 a^{1/3}-\left(-i+\sqrt{3}\right) b^{1/3}}+$$

$$\frac{(-1)^{5/6} \text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right) a^{1/3}}{a^{1/3}-i b^{1/3}}, \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right) a^{1/3}}}\right], (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right) \left(a^{1/3}-i b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3} \text{EllipticPi}\left[\frac{i \sqrt{3} a^{1/3}}{(-1)^{1/3} a^{1/3}-i b^{1/3}}, \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{\left(1+(-1)^{1/3}\right) a^{1/3}}}\right], (-1)^{1/3}\right]}{2 a^{1/3}-\left(i+\sqrt{3}\right) b^{1/3}}+$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathrm{i}+\sqrt{3}\right)\left(a^{1/3}+\mathrm{i}\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}\right)$$

$$\left.\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\,\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\,\text{Tan}[c+d\,x]^{1/3}\right)\Bigg/$$

$$\left(d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\,\left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\,\left(1+\text{Tan}[c+d\,x]^2\right)^{5/4}}\,(-1)^{5/6}a^{1/3}\left(\frac{\text{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}+\right.\right.$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathrm{i}+\sqrt{3}\right)\left(a^{1/3}-\mathrm{i}\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}+i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\text{Sec}[c+d\,x]^2\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\ \text{Tan}[c+d\,x]+$$

$$\left((-1)^{5/6}a^{1/3}\left(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.\right.$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}-i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}+i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\Big[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\ \text{ArcSin}\Big[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\Big],\ (-1)^{1/3}\Big]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{\text{EllipticPi}\Big[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\ \text{ArcSin}\Big[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\Big],\ (-1)^{1/3}\Big]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)\left(-\frac{b^{1/3}\,\text{Sec}[c+d\,x]^2}{3\,a^{1/3}\,\text{Tan}[c+d\,x]^{2/3}}+\frac{2\,b^{2/3}\,\text{Sec}[c+d\,x]^2}{3\,a^{2/3}\,\text{Tan}[c+d\,x]^{1/3}}\right)$$

$$\left.\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right)\Bigg/\left(\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\ \sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\ \left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}\right)+$$

$$\frac{1}{\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\ \left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}}\,2\,(-1)^{5/6}a^{1/3}\left(\left((-1)^{2/3}b^{1/3}\,\text{Sec}[c+d\,x]^2\right)\Big/\right.$$

$$\left(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right.$$

$$\left.\left(1-\frac{\left(i+(-1)^{1/6}\right)\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6}a^{1/3}-b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \text{Tan}[c+d\,x]^{2/3}\right)-\left(i\,b^{1/3}\,\text{Sec}[c+d\,x]^2\right)\Big/$$

$$\left(6\left(1+(-1)^{1/3}\right)\left(i+\sqrt{3}\right)a^{1/3}\left(a^{1/3}-i\,b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right.$$

$$\left.\left(1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}-i\,b^{1/3}}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \text{Tan}[c+d\,x]^{2/3}\right)+\left(b^{1/3}\,\text{Sec}[c+d\,x]^2\right)\Big/$$

$$\left(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right.$$

$$\left(1-\frac{i\sqrt{3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/3}a^{1/3}-i\,b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \mathrm{Tan}[c+dx]^{2/3}\Bigg)-\left(i\,b^{1/3}\mathrm{Sec}[c+dx]^2\right)\Big/$$

$$\Bigg(6\left(1+(-1)^{1/3}\right)\left(i+\sqrt{3}\right)a^{1/3}\left(a^{1/3}+i\,b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left(1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{a^{1/3}+i\,b^{1/3}}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \mathrm{Tan}[c+dx]^{2/3}\Bigg)+\left(b^{1/3}\mathrm{Sec}[c+dx]^2\right)\Big/$$

$$\Bigg(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left(1-\frac{i\sqrt{3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/3}a^{1/3}+i\,b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \mathrm{Tan}[c+dx]^{2/3}\Bigg)+\left((-1)^{2/3}b^{1/3}\mathrm{Sec}[c+dx]^2\right)\Big/$$

$$\Bigg(6\left(1+(-1)^{1/3}\right)a^{1/3}\left(2a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}\right)\sqrt{1-\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\sqrt{1-\frac{(-1)^{1/3}\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left(1-\frac{\left(i+(-1)^{1/6}\right)\left(a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6}a^{1/3}+b^{1/3}\right)}\right)\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\ \mathrm{Tan}[c+dx]^{2/3}\Bigg)\Bigg)$$

$$\sqrt{\frac{a^{1/3}+b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\sqrt{1-\frac{b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\mathrm{Tan}[c+dx]^{2/3}}{a^{2/3}}}+$$

$$\Bigg((-1)^{5/6}b^{1/3}\left(\frac{\mathrm{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],(-1)^{1/3}\right]}{2a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{(-1)^{5/6}\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\mathrm{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\mathrm{Tan}[c+dx]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}-i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}+i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\left.\text{Sec}[c+d\,x]^2\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\right)\Bigg/$$

$$\left(3\left(1+(-1)^{1/3}\right)\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\;\text{Tan}[c+d\,x]^{2/3}\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}}\left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}\right)-$$

$$\frac{1}{\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)^{3/2}\left(1+\text{Tan}[c+d\,x]^2\right)^{1/4}}(-1)^{5/6}a^{1/3}\left(\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}-i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{(-1)^{5/6}\,\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(a^{1/3}+i\,b^{1/3}\right)}-$$

$$\frac{(-1)^{1/3}\,\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{a^{1/3}+(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)\sqrt{\frac{a^{1/3}+b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{\left(1+(-1)^{1/3}\right)a^{1/3}}}$$

$$\left.\left.\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\left(-\frac{\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])}{\left(1+\text{Tan}[c+d\,x]^2\right)^{3/2}}+\frac{b\,\text{Sec}[c+d\,x]^2}{\sqrt{1+\text{Tan}[c+d\,x]^2}}\right)\right)\right)$$

- **Problem 678: Mathematica result simpler than optimal antiderivative, IF it can be verified!**

$$\int\frac{1}{\text{Tan}[c+d\,x]^{1/3}\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 163 leaves, 9 steps) :

$$\frac{3\,\text{AppellF1}\left[\frac{2}{3},\,1,\,\frac{1}{2},\,\frac{5}{3},\,-i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{2/3}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{4\,d\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$

$$\frac{3\,\text{AppellF1}\left[\frac{2}{3},\,1,\,\frac{1}{2},\,\frac{5}{3},\,i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{2/3}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{4\,d\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 76 172 leaves) : Display of huge result suppressed!

Problem 679: Mathematica result simpler than optimal antiderivative, IF it can be verified!

$$\int \frac{1}{\text{Tan}[c+d\,x]^{2/3}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 163 leaves, 9 steps):

$$\frac{3\,\text{AppellF1}\left[\frac{1}{3},1,\frac{1}{2},\frac{4}{3},-i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{1/3}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$
$$\frac{3\,\text{AppellF1}\left[\frac{1}{3},1,\frac{1}{2},\frac{4}{3},i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{1/3}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 6198 leaves):

$$\left(2\,(-1)^{2/3}\,a^{1/3}\left(-\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{\left(1-i\,\sqrt{3}\right)\left(a^{1/3}-i\,b^{1/3}\right)}+\frac{\text{EllipticPi}\left[\frac{i\,\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\,a^{1/3}-b^{1/3}\right)}-\frac{\text{EllipticPi}\left[\frac{i\,\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{1+\frac{b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\left(\frac{\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{1/3}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{1/3}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{1-\frac{b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\mathrm{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\right)\bigg/$$

$$\left(d\,\left(\mathrm{Sec}[c+d\,x]^2\right)^{1/4}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Sec}[c+d\,x]^2}}}\right.$$

$$\left(\left((-1)^{2/3}\,a^{1/3}\left(-\frac{(-1)^{2/3}\,\mathrm{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}\,a^{1/3}-b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}\,b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}+\right.\right.\right.$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}\,b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(1-\mathrm{i}\,\sqrt{3}\right)\left(a^{1/3}-\mathrm{i}\,b^{1/3}\right)}+$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\sqrt{3}\,a^{1/3}}{(-1)^{1/3}\,a^{1/3}-\mathrm{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}\,b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right) a^{1/3}}{a^{1/3}+i\, b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\ (-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\, a^{1/3}-b^{1/3}\right)}-$$

$$\frac{\text{EllipticPi}\left[\frac{i \sqrt{3}\, a^{1/3}}{(-1)^{1/3} a^{1/3}+i\, b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\ (-1)^{1/3}\right]}{2 a^{1/3}+\left(i+\sqrt{3}\right) b^{1/3}}+$$

$$\left.\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right) a^{1/3}}{(-1)^{1/6} a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3} \text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\ (-1)^{1/3}\right]}{2 a^{1/3}+\left(-i+\sqrt{3}\right) b^{1/3}}\right)$$

$$\left(\left(-\frac{b^{1/3}\,\text{Sec}[c+d x]^2}{3 a^{1/3}\,\text{Tan}[c+d x]^{2/3}}+\frac{2 b^{2/3}\,\text{Sec}[c+d x]^2}{3 a^{2/3}\,\text{Tan}[c+d x]^{1/3}}\right)\sqrt{\frac{1+\frac{b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right)\Big/$$

$$\left(\left(\text{Sec}[c+d x]^2\right)^{1/4}\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d x]^{2/3}}{a^{2/3}}}\ \sqrt{\frac{a+b\,\text{Tan}[c+d x]}{\sqrt{\text{Sec}[c+d x]^2}}}\right)+\frac{1}{\left(\text{Sec}[c+d x]^2\right)^{1/4}\sqrt{\frac{a+b\,\text{Tan}[c+d x]}{\sqrt{\text{Sec}[c+d x]^2}}}}$$

$$2\,(-1)^{2/3} a^{1/3}\left(\left((-1)^{1/3} b^{1/3}\,\text{Sec}[c+d x]^2\right)\Big/\left(6\left(1+(-1)^{1/3}\right) a^{1/3}\left(2 a^{1/3}-\left(-i+\sqrt{3}\right) b^{1/3}\right)\sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right.\right.$$

$$\left.\left.\sqrt{1-\frac{(-1)^{1/3}\left(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}\right)}{1+(-1)^{1/3}}}\left(1-\frac{\left(i+(-1)^{1/6}\right) a^{1/3}\left(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6} a^{1/3}-b^{1/3}\right)}\right)\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\ \text{Tan}[c+d x]^{2/3}\right)\right)+$$

$$\Big((-1)^{2/3}\, b^{1/3}\, \text{Sec}[c+d\,x]^2\Big) \Big/ \Bigg(6\,\big(1+(-1)^{1/3}\big)\,\big(1-\mathbb{i}\sqrt{3}\big)\, a^{1/3}\,\big(a^{1/3}-\mathbb{i}\, b^{1/3}\big)\, \sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{1+(-1)^{1/3}}}\;\left(1-\frac{a^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{a^{1/3}-\mathbb{i}\, b^{1/3}}\right)\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\text{Tan}[c+d\,x]^{2/3}\Bigg)+$$

$$\Big((-1)^{2/3}\, b^{1/3}\, \text{Sec}[c+d\,x]^2\Big) \Big/ \Bigg(6\,\big(1+(-1)^{1/3}\big)\, a^{1/3}\,\Big(2\, a^{1/3}-\big(\mathbb{i}+\sqrt{3}\big)\, b^{1/3}\Big)\, \sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{1+(-1)^{1/3}}}\;\left(1-\frac{\mathbb{i}\sqrt{3}\, a^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{\big(1+(-1)^{1/3}\big)\,\big((-1)^{1/3} a^{1/3}-\mathbb{i}\, b^{1/3}\big)}\right)\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\text{Tan}[c+d\,x]^{2/3}\Bigg)+$$

$$\Big((-1)^{2/3}\, b^{1/3}\, \text{Sec}[c+d\,x]^2\Big) \Big/ \Bigg(6\,\big(1+(-1)^{1/3}\big)\,\big(\mathbb{i}+\sqrt{3}\big)\, a^{1/3}\,\big(\mathbb{i}\, a^{1/3}-b^{1/3}\big)\, \sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{1+(-1)^{1/3}}}\;\left(1-\frac{a^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{a^{1/3}+\mathbb{i}\, b^{1/3}}\right)\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\text{Tan}[c+d\,x]^{2/3}\Bigg)-$$

$$\Big((-1)^{2/3}\, b^{1/3}\, \text{Sec}[c+d\,x]^2\Big) \Big/ \Bigg(6\,\big(1+(-1)^{1/3}\big)\, a^{1/3}\,\Big(2\, a^{1/3}+\big(\mathbb{i}+\sqrt{3}\big)\, b^{1/3}\Big)\, \sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{1+(-1)^{1/3}}}\;\left(1-\frac{\mathbb{i}\sqrt{3}\, a^{1/3}\Big(1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\Big)}{\big(1+(-1)^{1/3}\big)\,\big((-1)^{1/3} a^{1/3}+\mathbb{i}\, b^{1/3}\big)}\right)\sqrt{\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\text{Tan}[c+d\,x]^{2/3}\Bigg)-$$

$$\Big((-1)^{1/3}\, b^{1/3}\, \text{Sec}[c+d\,x]^2\Big) \Big/ \Bigg(6\,\big(1+(-1)^{1/3}\big)\, a^{1/3}\,\Big(2\, a^{1/3}+\big(-\mathbb{i}+\sqrt{3}\big)\, b^{1/3}\Big)\, \sqrt{1-\frac{1+\frac{(-1)^{2/3} b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\sqrt{1-\frac{(-1)^{1/3}\left(1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\right)}{1+(-1)^{1/3}}}\;\left(1-\frac{\left(\mathbb{i}+(-1)^{1/6}\right)a^{1/3}\left(1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}\right)}{\left(1+(-1)^{1/3}\right)\left((-1)^{1/6}a^{1/3}+b^{1/3}\right)}\right)\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\Bigg)\Bigg)$$

$$\sqrt{\frac{1+\frac{b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\sqrt{1-\frac{b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\mathrm{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\;+\frac{1}{3\left(1+(-1)^{1/3}\right)\sqrt{\frac{1+\frac{b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\;\mathrm{Tan}[c+d\,x]^{2/3}\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Sec}[c+d\,x]^2}}}}$$

$$(-1)^{2/3}b^{1/3}\left(-\frac{(-1)^{2/3}\,\mathrm{EllipticPi}\left[\frac{\left(\mathbb{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathbb{i}+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathbb{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(1-\mathbb{i}\sqrt{3}\right)\left(a^{1/3}-\mathbb{i}\,b^{1/3}\right)}+$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\mathbb{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-\mathbb{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathbb{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+\mathbb{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathbb{i}+\sqrt{3}\right)\left(\mathbb{i}\,a^{1/3}-b^{1/3}\right)}-$$

$$\frac{\mathrm{EllipticPi}\left[\frac{\mathbb{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+\mathbb{i}\,b^{1/3}},\,\mathrm{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\mathrm{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(\mathbb{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}\right)$$

$$\left(\text{Sec}[c+d\,x]^2\right)^{3/4}\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\;-\;\frac{1}{\left(\text{Sec}[c+d\,x]^2\right)^{1/4}\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}}}$$

$$(-1)^{2/3}a^{1/3}\left(-\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(\mathrm{i}+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-\mathrm{i}+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(1-\mathrm{i}\sqrt{3}\right)\left(a^{1/3}-\mathrm{i}\,b^{1/3}\right)}+$$

$$\frac{\text{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(\mathrm{i}+\sqrt{3}\right)\left(\mathrm{i}\,a^{1/3}-b^{1/3}\right)}-$$

$$\frac{\text{EllipticPi}\left[\frac{\mathrm{i}\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+\mathrm{i}\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(\mathrm{i}+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)$$

$$\sqrt{\frac{1+\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\,\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\,\text{Tan}[c+d\,x]-$$

$$\frac{1}{\left(\text{Sec}[c+d\,x]^2\right)^{1/4}\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{3/2}}\,(-1)^{2/3}a^{1/3}\left(-\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}-b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(-i+\sqrt{3}\right)b^{1/3}}+\right.$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(1-i\sqrt{3}\right)\left(a^{1/3}-i\,b^{1/3}\right)}+$$

$$\frac{\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}-i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}-\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\frac{\text{EllipticPi}\left[\frac{\left(1+(-1)^{1/3}\right)a^{1/3}}{a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{\left(i+\sqrt{3}\right)\left(i\,a^{1/3}-b^{1/3}\right)}-$$

$$\frac{\text{EllipticPi}\left[\frac{i\sqrt{3}\,a^{1/3}}{(-1)^{1/3}a^{1/3}+i\,b^{1/3}},\,\text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\,(-1)^{1/3}\right]}{2\,a^{1/3}+\left(i+\sqrt{3}\right)b^{1/3}}+$$

$$\left.\frac{(-1)^{2/3}\,\text{EllipticPi}\left[\frac{\left(i+(-1)^{1/6}\right)a^{1/3}}{(-1)^{1/6}a^{1/3}+b^{1/3}},\ \text{ArcSin}\left[\sqrt{\frac{1+\frac{(-1)^{2/3}b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}\right],\ (-1)^{1/3}\right]}{2\,a^{1/3}+\left(-i+\sqrt{3}\right)b^{1/3}}\right)\sqrt{\frac{1+\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}}{1+(-1)^{1/3}}}$$

$$\left.\left.\sqrt{1-\frac{b^{1/3}\,\text{Tan}[c+d\,x]^{1/3}}{a^{1/3}}+\frac{b^{2/3}\,\text{Tan}[c+d\,x]^{2/3}}{a^{2/3}}}\left(b\sqrt{\text{Sec}[c+d\,x]^2}-\frac{\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)\right)\right)$$

- **Problem 680: Mathematica result simpler than optimal antiderivative, IF it can be verified!**

$$\int\frac{1}{\text{Tan}[c+d\,x]^{4/3}\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 163 leaves, 9 steps):

$$-\frac{3\,\text{AppellF1}\left[-\frac{1}{3},1,\frac{1}{2},\frac{2}{3},-i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,\text{Tan}[c+d\,x]^{1/3}\sqrt{a+b\,\text{Tan}[c+d\,x]}}-\frac{3\,\text{AppellF1}\left[-\frac{1}{3},1,\frac{1}{2},\frac{2}{3},i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,\text{Tan}[c+d\,x]^{1/3}\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 23 249 leaves): Display of huge result suppressed!

- **Problem 681: Result unnecessarily involves imaginary or complex numbers.**

$$\int\text{Tan}[e+f\,x]^4\,(c+d\,\text{Tan}[e+f\,x])^{1/3}\,dx$$

Optimal (type 3, 525 leaves, 16 steps):

$$-\frac{1}{4}\left(c-\sqrt{-d^2}\right)^{1/3}x-\frac{1}{4}\left(c+\sqrt{-d^2}\right)^{1/3}x-\frac{\sqrt{3}\sqrt{-d^2}\left(c-\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c-\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\,d\,f}+$$

$$\frac{\sqrt{3}\sqrt{-d^2}\left(c+\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c+\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\,d\,f}+\frac{\sqrt{-d^2}\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\,d\,f}-\frac{\sqrt{-d^2}\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\,d\,f}+$$

$$\frac{3\sqrt{-d^2}\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c-\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\,d\,f}-\frac{3\sqrt{-d^2}\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c+\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\,d\,f}+$$

$$\frac{3\left(9c^2-35d^2\right)(c+d\,\text{Tan}[e+f\,x])^{4/3}}{140\,d^3\,f}-\frac{9\,c\,\text{Tan}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])^{4/3}}{35\,d^2\,f}+\frac{3\,\text{Tan}[e+f\,x]^2\,(c+d\,\text{Tan}[e+f\,x])^{4/3}}{10\,d\,f}$$

Result (type 3, 442 leaves):

$$-\frac{1}{4f}\,i\left(2\sqrt{3}\,(c-i\,d)^{1/3}\,\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-2\sqrt{3}\,(c+i\,d)^{1/3}\,\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]-\right.$$
$$2\,(c-i\,d)^{1/3}\,\text{Log}\left[(c-i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]+2\,(c+i\,d)^{1/3}\,\text{Log}\left[(c+i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]+$$
$$(c-i\,d)^{1/3}\,\text{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]-$$
$$\left.(c+i\,d)^{1/3}\,\text{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]\right)+\frac{1}{f}$$
$$(c+d\,\text{Tan}[e+f\,x])^{1/3}\left(\frac{3\,c\left(9c^2-37d^2\right)}{140\,d^3}+\frac{3\,c\,\text{Sec}[e+f\,x]^2}{70\,d}-\frac{3\,\text{Sec}[e+f\,x]\left(3c^2\,\text{Sin}[e+f\,x]+49\,d^2\,\text{Sin}[e+f\,x]\right)}{140\,d^2}+\frac{3}{10}\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)$$

- **Problem 683: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Tan}[e+f\,x]^2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}\,dx$$

Optimal (type 3, 439 leaves, 14 steps):

$$\frac{1}{4}\left(c-\sqrt{-d^2}\right)^{1/3}x+\frac{1}{4}\left(c+\sqrt{-d^2}\right)^{1/3}x-\frac{\sqrt{3}\,d\left(c-\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c-\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}+\frac{\sqrt{3}\,d\left(c+\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c+\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}+$$
$$\frac{d\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}-\frac{d\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}+\frac{3\,d\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c-\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}-$$
$$\frac{3\,d\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c+\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}+\frac{3(c+d\,\text{Tan}[e+f\,x])^{4/3}}{4\,d\,f}$$

Result (type 3, 355 leaves) :

$$\frac{1}{4f}\left(i\left(2\sqrt{3}\,(c-i\,d)^{1/3}\,\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-2\sqrt{3}\,(c+i\,d)^{1/3}\,\text{ArcTan}\left[\frac{1+\frac{2(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]-\right.\right.$$
$$2(c-i\,d)^{1/3}\,\text{Log}\left[(c-i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]+2(c+i\,d)^{1/3}\,\text{Log}\left[(c+i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]+$$
$$(c-i\,d)^{1/3}\,\text{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]-$$
$$\left.\left.(c+i\,d)^{1/3}\,\text{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]\right)+\frac{3(c+d\,\text{Tan}[e+f\,x])^{4/3}}{d}\right)$$

- **Problem 685: Result unnecessarily involves imaginary or complex numbers.**

$$\int (c+d\,\text{Tan}[e+f\,x])^{1/3}\,dx$$

Optimal (type 3, 415 leaves, 13 steps) :

$$-\frac{1}{4}\left(c-\sqrt{-d^2}\right)^{1/3}x-\frac{1}{4}\left(c+\sqrt{-d^2}\right)^{1/3}x+\frac{\sqrt{3}\,d\left(c-\sqrt{-d^2}\right)^{1/3}\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{\left(c-\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}-$$

$$\frac{\sqrt{3}\,d\left(c+\sqrt{-d^2}\right)^{1/3}\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{\left(c+\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}-\frac{d\left(c-\sqrt{-d^2}\right)^{1/3}\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}+\frac{d\left(c+\sqrt{-d^2}\right)^{1/3}\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}-$$

$$\frac{3\,d\left(c-\sqrt{-d^2}\right)^{1/3}\mathrm{Log}\left[\left(c-\sqrt{-d^2}\right)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}+\frac{3\,d\left(c+\sqrt{-d^2}\right)^{1/3}\mathrm{Log}\left[\left(c+\sqrt{-d^2}\right)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}$$

Result (type 3, 333 leaves) :

$$-\frac{1}{4\,f}\,\mathrm{i}\,\Bigg(2\sqrt{3}\,(c-\mathrm{i}\,d)^{1/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-\mathrm{i}\,d)^{1/3}}}{\sqrt{3}}\right]-2\sqrt{3}\,(c+\mathrm{i}\,d)^{1/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+\mathrm{i}\,d)^{1/3}}}{\sqrt{3}}\right]-$$
$$2\,(c-\mathrm{i}\,d)^{1/3}\,\mathrm{Log}\left[(c-\mathrm{i}\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]+2\,(c+\mathrm{i}\,d)^{1/3}\,\mathrm{Log}\left[(c+\mathrm{i}\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]+$$
$$(c-\mathrm{i}\,d)^{1/3}\,\mathrm{Log}\left[(c-\mathrm{i}\,d)^{2/3}+(c-\mathrm{i}\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]-$$
$$(c+\mathrm{i}\,d)^{1/3}\,\mathrm{Log}\left[(c+\mathrm{i}\,d)^{2/3}+(c+\mathrm{i}\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]\Bigg)$$

- **Problem 687: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f\,x]^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\,dx$$

Optimal (type 3, 546 leaves, 20 steps) :

$$\frac{1}{4}\left(c-\sqrt{-d^2}\right)^{1/3}x+\frac{1}{4}\left(c+\sqrt{-d^2}\right)^{1/3}x-\frac{d\,\text{ArcTan}\left[\frac{c^{1/3}+2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\sqrt{3}\,c^{1/3}}\right]}{\sqrt{3}\,c^{2/3}\,f}-\frac{\sqrt{3}\,d\left(c-\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c-\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}+$$

$$\frac{\sqrt{3}\,d\left(c+\sqrt{-d^2}\right)^{1/3}\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{\left(c+\sqrt{-d^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-d^2}\,f}+\frac{d\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}-\frac{d\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}[\text{Cos}[e+f\,x]]}{4\sqrt{-d^2}\,f}-$$

$$\frac{d\,\text{Log}[\text{Tan}[e+f\,x]]}{6\,c^{2/3}\,f}+\frac{d\,\text{Log}\left[c^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{2\,c^{2/3}\,f}+\frac{3\,d\left(c-\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c-\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}-$$

$$\frac{3\,d\left(c+\sqrt{-d^2}\right)^{1/3}\text{Log}\left[\left(c+\sqrt{-d^2}\right)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]}{4\sqrt{-d^2}\,f}-\frac{\text{Cot}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{f}$$

Result (type 3, 5474 leaves):

$$-\frac{\text{Cot}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{f}+$$

$$\left(\left(-4\sqrt{3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{c^{1/3}}}{\sqrt{3}}\right]+6\sqrt{3}\,c^{2/3}\,(c+i\,d)^{2/3}\,(i\,c+d)\,\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-\right.\right.$$

$$6\,i\sqrt{3}\,c^{5/3}\,(c-i\,d)^{2/3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+6\sqrt{3}\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\text{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\text{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+$$

$$4\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\text{Log}\left[c^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]-6\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\text{Log}\left[(c-i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]-$$

$$6\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\text{Log}\left[(c-i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]+6\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\text{Log}\left[(c+i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]-6\,c^{2/3}\,(c-i\,d)^{2/3}$$

$$d\,\text{Log}\left[(c+i\,d)^{1/3}-(c+d\,\text{Tan}[e+f\,x])^{1/3}\right]-2\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\text{Log}\left[c^{2/3}+c^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]+$$

$$3\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\text{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]+$$

$$3\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\text{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]-$$

$$3\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\text{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]+$$

$$\left.3\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\text{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\text{Tan}[e+f\,x])^{1/3}+(c+d\,\text{Tan}[e+f\,x])^{2/3}\right]\right)\left(\text{Sec}[e+f\,x]^2\right)^{1/6}$$

$$\left(-\frac{d\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]^{1/3}}{6\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{2/3}}+\frac{d\,\text{Cos}[2\,(e+f\,x)]\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]^{1/3}}{2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{2/3}}-\frac{c\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]^{1/3}\,\text{Sin}[2\,(e+f\,x)]}{2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{2/3}}\right)$$

$$\left.\left(\frac{c+d\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{1/3}\right)\Big/$$

$$\Big(12\,c^{2/3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,f\,\mathrm{Sec}[e+f\,x]^{1/3}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{1/3}$$

$$\Bigg(-\frac{1}{36\,c^{2/3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{4/3}}\,d\,\left(-4\sqrt{3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{c^{1/3}}}{\sqrt{3}}\right]+\right.$$

$$6\sqrt{3}\,c^{2/3}\,(c+i\,d)^{2/3}\,(i\,c+d)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-6\,i\sqrt{3}\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+$$

$$6\sqrt{3}\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+4\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$

$$6\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-6\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]+$$

$$6\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-6\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$

$$2\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{2/3}+c^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$

$$3\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$

$$3\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]-$$

$$3\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+3\,c^{2/3}\,(c-i\,d)^{2/3}\,d$$

$$\left.\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]\right)\left(\mathrm{Sec}[e+f\,x]^2\right)^{7/6}\left(\frac{c+d\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{1/3}+$$

$$\frac{1}{36\,c^{2/3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\left(-4\sqrt{3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{c^{1/3}}}{\sqrt{3}}\right]+\right.$$

$$6\sqrt{3}\,c^{2/3}\,(c+i\,d)^{2/3}\,(i\,c+d)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-6\,i\sqrt{3}\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+$$

$$6\sqrt{3}\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+4\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$

$$6\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-6\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]+$$

$$6\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-6\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$

$$2\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{2/3}+c^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$

$$3\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$
$$3\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]-$$
$$3\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+3\,c^{2/3}\,(c-i\,d)^{2/3}\,d$$
$$\left.\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]\right)\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}\,\mathrm{Tan}[e+f\,x]\,\left(\frac{c+d\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{1/3}+$$

$$\left(\left(-4\,\sqrt{3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{c^{1/3}}}{\sqrt{3}}\right]+6\,\sqrt{3}\,c^{2/3}\,(c+i\,d)^{2/3}\,(i\,c+d)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]-\right.\right.$$
$$6\,i\,\sqrt{3}\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+6\,\sqrt{3}\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}}{\sqrt{3}}\right]+$$
$$4\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-6\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$
$$6\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]+6\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-$$
$$6\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]-2\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[c^{2/3}+c^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+\right.$$
$$\left.(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+3\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$
$$3\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]-$$
$$3\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]+$$
$$\left.3\,c^{2/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Log}\left[(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\right]\right)\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}$$
$$\left.\left(d\,\sqrt{\mathrm{Sec}[e+f\,x]^2}-\frac{\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)\right)\Big/\left(36\,c^{2/3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\,\left(\frac{c+d\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{2/3}\right)+$$

$$\frac{1}{12\,c^{2/3}\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\,\left(\mathrm{Sec}[e+f\,x]^2\right)^{1/6}\,\left(\frac{c+d\,\mathrm{Tan}[e+f\,x]}{\sqrt{\mathrm{Sec}[e+f\,x]^2}}\right)^{1/3}$$
$$\left(-\frac{4\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d^2\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\,\left(c^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right)}+\frac{2\,i\,c^{5/3}\,(c+i\,d)^{2/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\,\left((c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right)}+\right.$$
$$\frac{2\,c^{2/3}\,(c+i\,d)^{2/3}\,d^2\,\mathrm{Sec}[e+f\,x]^2}{(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\,\left((c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right)}-\frac{2\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\,\left((c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right)}+$$
$$\frac{2\,c^{2/3}\,(c-i\,d)^{2/3}\,d^2\,\mathrm{Sec}[e+f\,x]^2}{(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\,\left((c+i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right)}-\frac{2\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d\,\left(\frac{c^{1/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+\frac{2\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\right)}{c^{2/3}+c^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+$$

$$\frac{3\,i\,c^{5/3}\,(c+i\,d)^{2/3}\left(\frac{(c-i\,d)^{1/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+\frac{2\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\right)}{(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+$$

$$\frac{3\,c^{2/3}\,(c+i\,d)^{2/3}\,d\left(\frac{(c-i\,d)^{1/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+\frac{2\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\right)}{(c-i\,d)^{2/3}+(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}-$$

$$\frac{3\,i\,c^{5/3}\,(c-i\,d)^{2/3}\left(\frac{(c+i\,d)^{1/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+\frac{2\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\right)}{(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+$$

$$\frac{3\,c^{2/3}\,(c-i\,d)^{2/3}\,d\left(\frac{(c+i\,d)^{1/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}+\frac{2\,d\,\mathrm{Sec}[e+f\,x]^2}{3\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\right)}{(c+i\,d)^{2/3}+(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}+(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}}-$$

$$\frac{8\,(c-i\,d)^{2/3}\,(c+i\,d)^{2/3}\,d^2\,\mathrm{Sec}[e+f\,x]^2}{3\,c^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{c^{1/3}}\right)^2\right)}+\frac{4\,c^{2/3}\,(c+i\,d)^{2/3}\,d\,(i\,c+d)\,\mathrm{Sec}[e+f\,x]^2}{(c-i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}\right)^2\right)}-$$

$$\left.\left.\left.\frac{4\,i\,c^{5/3}\,(c-i\,d)^{2/3}\,d\,\mathrm{Sec}[e+f\,x]^2}{(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}\right)^2\right)}+\frac{4\,c^{2/3}\,(c-i\,d)^{2/3}\,d^2\,\mathrm{Sec}[e+f\,x]^2}{(c+i\,d)^{1/3}\,(c+d\,\mathrm{Tan}[e+f\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c+i\,d)^{1/3}}\right)^2\right)}\right)\right)\right)$$

- **Problem 688: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\mathrm{Tan}[c+d\,x])^{5/3}\,dx$$

Optimal (type 3, 329 leaves, 12 steps):

$$-\frac{1}{4}\,(a-i\,b)^{5/3}\,x-\frac{1}{4}\,(a+i\,b)^{5/3}\,x+\frac{i\,\sqrt{3}\,(a-i\,b)^{5/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}-$$

$$\frac{i\,\sqrt{3}\,(a+i\,b)^{5/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}+\frac{i\,(a-i\,b)^{5/3}\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\,d}-\frac{i\,(a+i\,b)^{5/3}\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\,d}+$$

$$\frac{3\,i\,(a-i\,b)^{5/3}\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\,d}-\frac{3\,i\,(a+i\,b)^{5/3}\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\,d}+\frac{3\,b\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}{2\,d}$$

Result (type 3, 935 leaves):

$$\frac{1}{4\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}\,\mathrm{Cos}[c+d\,x]\left(6\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/3}+\frac{1}{(a-i\,b)^{1/3}\,(a+i\,b)^{1/3}}\right.$$
$$\mathrm{Cos}[c+d\,x]\left(2\,i\,\sqrt{3}\,(a-i\,b)^2\,(a+i\,b)^{1/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]-2\,i\,\sqrt{3}\,(a-i\,b)^{1/3}\,(a+i\,b)^2\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]+\right.$$
$$2\,i\,a^2\,(a+i\,b)^{1/3}\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+4\,a\,(a+i\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-$$
$$2\,i\,(a+i\,b)^{1/3}\,b^2\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-2\,i\,a^2\,(a-i\,b)^{1/3}\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$4\,a\,(a-i\,b)^{1/3}\,b\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,i\,(a-i\,b)^{1/3}\,b^2\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-$$
$$i\,a^2\,(a+i\,b)^{1/3}\,\mathrm{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$2\,a\,(a+i\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]+$$
$$i\,(a+i\,b)^{1/3}\,b^2\,\mathrm{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]+$$
$$i\,a^2\,(a-i\,b)^{1/3}\,\mathrm{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$2\,a\,(a-i\,b)^{1/3}\,b\,\mathrm{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$\left.\left.i\,(a-i\,b)^{1/3}\,b^2\,\mathrm{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^2\right)$$

- **Problem 689: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\mathrm{Tan}[c+d\,x])^{4/3}\,dx$$

Optimal (type 3, 327 leaves, 12 steps):

$$-\frac{1}{4}\,(a-i\,b)^{4/3}\,x-\frac{1}{4}\,(a+i\,b)^{4/3}\,x-\frac{i\,\sqrt{3}\,(a-i\,b)^{4/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}+$$
$$\frac{i\,\sqrt{3}\,(a+i\,b)^{4/3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}+\frac{i\,(a-i\,b)^{4/3}\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\,d}-\frac{i\,(a+i\,b)^{4/3}\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\,d}+$$
$$\frac{3\,i\,(a-i\,b)^{4/3}\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\,d}-\frac{3\,i\,(a+i\,b)^{4/3}\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\,d}+\frac{3\,b\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{d}$$

Result (type 3, 935 leaves):

$$\frac{1}{4\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}\text{Cos}[c+d\,x]\left(12\,b\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{4/3}+\frac{1}{(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}}\right.$$

$$\text{Cos}[c+d\,x]\left(-2\,i\,\sqrt{3}\,(a-i\,b)^2\,(a+i\,b)^{2/3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]+2\,i\,\sqrt{3}\,(a-i\,b)^{2/3}\,(a+i\,b)^2\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]+\right.$$

$$2\,i\,a^2\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+4\,a\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-$$
$$2\,i\,(a+i\,b)^{2/3}\,b^2\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,i\,a^2\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$
$$4\,a\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,i\,(a-i\,b)^{2/3}\,b^2\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-$$
$$i\,a^2\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$
$$2\,a\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$
$$i\,(a+i\,b)^{2/3}\,b^2\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$
$$i\,a^2\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$
$$2\,a\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$
$$\left.\left.i\,(a-i\,b)^{2/3}\,b^2\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\right)\,(a+b\,\text{Tan}[c+d\,x])^2\right)$$

■ Problem 690: Result unnecessarily involves imaginary or complex numbers.

$$\int (a+b\,\text{Tan}[c+d\,x])^{2/3}\,dx$$

Optimal (type 3, 415 leaves, 13 steps):

$$-\frac{1}{4}\left(a-\sqrt{-b^2}\right)^{2/3}x-\frac{1}{4}\left(a+\sqrt{-b^2}\right)^{2/3}x-\frac{\sqrt{3}\,b\left(a-\sqrt{-b^2}\right)^{2/3}\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{\left(a-\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\,d}+$$

$$\frac{\sqrt{3}\,b\left(a+\sqrt{-b^2}\right)^{2/3}\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{\left(a+\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\,d}-\frac{b\left(a-\sqrt{-b^2}\right)^{2/3}\text{Log}[\text{Cos}[c+d\,x]]}{4\sqrt{-b^2}\,d}+\frac{b\left(a+\sqrt{-b^2}\right)^{2/3}\text{Log}[\text{Cos}[c+d\,x]]}{4\sqrt{-b^2}\,d}-$$

$$\frac{3\,b\left(a-\sqrt{-b^2}\right)^{2/3}\text{Log}\left[\left(a-\sqrt{-b^2}\right)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\,d}+\frac{3\,b\left(a+\sqrt{-b^2}\right)^{2/3}\text{Log}\left[\left(a+\sqrt{-b^2}\right)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\,d}$$

Result (type 3, 333 leaves):

$$\frac{1}{4 d} i \left(2 \sqrt{3} (a - i b)^{2/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right] - 2 \sqrt{3} (a + i b)^{2/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right] + 2 (a - i b)^{2/3} \text{Log}\left[(a - i b)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right] - 2 (a + i b)^{2/3} \text{Log}\left[(a + i b)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right] - (a - i b)^{2/3} \text{Log}\left[(a - i b)^{2/3} + (a - i b)^{1/3} (a + b \text{Tan}[c + d x])^{1/3} + (a + b \text{Tan}[c + d x])^{2/3}\right] + (a + i b)^{2/3} \text{Log}\left[(a + i b)^{2/3} + (a + i b)^{1/3} (a + b \text{Tan}[c + d x])^{1/3} + (a + b \text{Tan}[c + d x])^{2/3}\right]\right)$$

- **Problem 691: Result unnecessarily involves imaginary or complex numbers.**

$$\int (a + b \text{Tan}[c + d x])^{1/3} \, dx$$

Optimal (type 3, 415 leaves, 13 steps) :

$$-\frac{1}{4} \left(a - \sqrt{-b^2}\right)^{1/3} x - \frac{1}{4} \left(a + \sqrt{-b^2}\right)^{1/3} x + \frac{\sqrt{3} \, b \left(a - \sqrt{-b^2}\right)^{1/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{\left(a-\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2 \sqrt{-b^2} \, d} - \frac{\sqrt{3} \, b \left(a + \sqrt{-b^2}\right)^{1/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{\left(a+\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2 \sqrt{-b^2} \, d} - \frac{b \left(a - \sqrt{-b^2}\right)^{1/3} \text{Log}[\text{Cos}[c + d x]]}{4 \sqrt{-b^2} \, d} + \frac{b \left(a + \sqrt{-b^2}\right)^{1/3} \text{Log}[\text{Cos}[c + d x]]}{4 \sqrt{-b^2} \, d} - \frac{3 b \left(a - \sqrt{-b^2}\right)^{1/3} \text{Log}\left[\left(a - \sqrt{-b^2}\right)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right]}{4 \sqrt{-b^2} \, d} + \frac{3 b \left(a + \sqrt{-b^2}\right)^{1/3} \text{Log}\left[\left(a + \sqrt{-b^2}\right)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right]}{4 \sqrt{-b^2} \, d}$$

Result (type 3, 333 leaves) :

$$-\frac{1}{4 d} i \left(2 \sqrt{3} (a - i b)^{1/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right] - 2 \sqrt{3} (a + i b)^{1/3} \text{ArcTan}\left[\frac{1 + \frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right] - 2 (a - i b)^{1/3} \text{Log}\left[(a - i b)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right] + 2 (a + i b)^{1/3} \text{Log}\left[(a + i b)^{1/3} - (a + b \text{Tan}[c + d x])^{1/3}\right] + (a - i b)^{1/3} \text{Log}\left[(a - i b)^{2/3} + (a - i b)^{1/3} (a + b \text{Tan}[c + d x])^{1/3} + (a + b \text{Tan}[c + d x])^{2/3}\right] - (a + i b)^{1/3} \text{Log}\left[(a + i b)^{2/3} + (a + i b)^{1/3} (a + b \text{Tan}[c + d x])^{1/3} + (a + b \text{Tan}[c + d x])^{2/3}\right]\right)$$

Problem 692: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\,dx$$

Optimal (type 3, 415 leaves, 11 steps):

$$-\frac{x}{4\left(a-\sqrt{-b^2}\right)^{1/3}}-\frac{x}{4\left(a+\sqrt{-b^2}\right)^{1/3}}-\frac{\sqrt{3}\,b\,\mathrm{ArcTan}\left[\frac{1+\frac{2(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{\left(a-\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\left(a-\sqrt{-b^2}\right)^{1/3}d}+\frac{\sqrt{3}\,b\,\mathrm{ArcTan}\left[\frac{1+\frac{2(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{\left(a+\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\left(a+\sqrt{-b^2}\right)^{1/3}d}-\frac{b\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\sqrt{-b^2}\left(a-\sqrt{-b^2}\right)^{1/3}d}+$$
$$\frac{b\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{4\sqrt{-b^2}\left(a+\sqrt{-b^2}\right)^{1/3}d}-\frac{3\,b\,\mathrm{Log}\left[\left(a-\sqrt{-b^2}\right)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\left(a-\sqrt{-b^2}\right)^{1/3}d}+\frac{3\,b\,\mathrm{Log}\left[\left(a+\sqrt{-b^2}\right)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\left(a+\sqrt{-b^2}\right)^{1/3}d}$$

Result (type 3, 333 leaves):

$$\frac{1}{4\,d}\,i\left(\frac{2\sqrt{3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{(a-i\,b)^{1/3}}-\frac{2\sqrt{3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{(a+i\,b)^{1/3}}+\frac{2\,\mathrm{Log}\left[(a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{(a-i\,b)^{1/3}}-\right.$$
$$\frac{2\,\mathrm{Log}\left[(a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]}{(a+i\,b)^{1/3}}-\frac{\mathrm{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]}{(a-i\,b)^{1/3}}+$$
$$\left.\frac{\mathrm{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]}{(a+i\,b)^{1/3}}\right)$$

Problem 693: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}\,dx$$

Optimal (type 3, 415 leaves, 11 steps):

$$-\frac{x}{4\left(a-\sqrt{-b^2}\right)^{2/3}}-\frac{x}{4\left(a+\sqrt{-b^2}\right)^{2/3}}+\frac{\sqrt{3}\,b\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{\left(a-\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\,\left(a-\sqrt{-b^2}\right)^{2/3}d}-\frac{\sqrt{3}\,b\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{\left(a+\sqrt{-b^2}\right)^{1/3}}}{\sqrt{3}}\right]}{2\sqrt{-b^2}\,\left(a+\sqrt{-b^2}\right)^{2/3}d}-\frac{b\,\text{Log}[\text{Cos}[c+d\,x]]}{4\sqrt{-b^2}\,\left(a-\sqrt{-b^2}\right)^{2/3}d}+$$

$$\frac{b\,\text{Log}[\text{Cos}[c+d\,x]]}{4\sqrt{-b^2}\,\left(a+\sqrt{-b^2}\right)^{2/3}d}-\frac{3\,b\,\text{Log}\left[\left(a-\sqrt{-b^2}\right)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\,\left(a-\sqrt{-b^2}\right)^{2/3}d}+\frac{3\,b\,\text{Log}\left[\left(a+\sqrt{-b^2}\right)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\sqrt{-b^2}\,\left(a+\sqrt{-b^2}\right)^{2/3}d}$$

Result (type 3, 333 leaves) :

$$-\frac{1}{4\,d}\,i\left(\frac{2\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{(a-i\,b)^{2/3}}-\frac{2\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{(a+i\,b)^{2/3}}-\frac{2\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{(a-i\,b)^{2/3}}+\right.$$

$$\frac{2\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{(a+i\,b)^{2/3}}+\frac{\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]}{(a-i\,b)^{2/3}}-$$

$$\left.\frac{\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]}{(a+i\,b)^{2/3}}\right)$$

Problem 694: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+b\,\text{Tan}[c+d\,x])^{4/3}}\,dx$$

Optimal (type 3, 336 leaves, 12 steps) :

$$-\frac{x}{4\,(a-i\,b)^{4/3}}-\frac{x}{4\,(a+i\,b)^{4/3}}+\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,(a-i\,b)^{4/3}\,d}-\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,(a+i\,b)^{4/3}\,d}+\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,(a-i\,b)^{4/3}\,d}-\frac{i\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,(a+i\,b)^{4/3}\,d}+$$

$$\frac{3\,i\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,(a-i\,b)^{4/3}\,d}-\frac{3\,i\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,(a+i\,b)^{4/3}\,d}-\frac{3\,b}{\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 3, 754 leaves) :

$$\frac{\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(-\frac{3 b}{a\,(a-i b)\,(a+i b)}+\frac{3 b^2\,\text{Sin}[c+d x]}{a\,(a-i b)\,(a+i b)\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)}{d\,(a+b\,\text{Tan}[c+d x])^{4/3}}+$$

$$\frac{1}{4\,(a-i b)^{1/3}\,(a+i b)^{1/3}\,(a^2+b^2)\,d\,(a+b\,\text{Tan}[c+d x])}$$

$$\left(2 i\sqrt{3}\,(a+i b)^{4/3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right]-2 i\sqrt{3}\,(a-i b)^{4/3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right]+\right.$$

$$2 i a\,(a+i b)^{1/3}\,\text{Log}\left[(a-i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]-2\,(a+i b)^{1/3}\,b\,\text{Log}\left[(a-i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]-$$

$$2 i a\,(a-i b)^{1/3}\,\text{Log}\left[(a+i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]-2\,(a-i b)^{1/3}\,b\,\text{Log}\left[(a+i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]-$$

$$i a\,(a+i b)^{1/3}\,\text{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3}\,(a+b\,\text{Tan}[c+d x])^{1/3}+(a+b\,\text{Tan}[c+d x])^{2/3}\right]+$$

$$(a+i b)^{1/3}\,b\,\text{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3}\,(a+b\,\text{Tan}[c+d x])^{1/3}+(a+b\,\text{Tan}[c+d x])^{2/3}\right]+$$

$$i a\,(a-i b)^{1/3}\,\text{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3}\,(a+b\,\text{Tan}[c+d x])^{1/3}+(a+b\,\text{Tan}[c+d x])^{2/3}\right]+$$

$$\left.(a-i b)^{1/3}\,b\,\text{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3}\,(a+b\,\text{Tan}[c+d x])^{1/3}+(a+b\,\text{Tan}[c+d x])^{2/3}\right]\right)\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])$$

- **Problem 695: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+b\,\text{Tan}[c+d x])^{5/3}}\,dx$$

Optimal (type 3, 338 leaves, 12 steps):

$$-\frac{x}{4\,(a-i b)^{5/3}}-\frac{x}{4\,(a+i b)^{5/3}}-\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right]}{2\,(a-i b)^{5/3}\,d}+\frac{i\sqrt{3}\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right]}{2\,(a+i b)^{5/3}\,d}+\frac{i\,\text{Log}[\text{Cos}[c+d x]]}{4\,(a-i b)^{5/3}\,d}-\frac{i\,\text{Log}[\text{Cos}[c+d x]]}{4\,(a+i b)^{5/3}\,d}+$$

$$\frac{3 i\,\text{Log}\left[(a-i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]}{4\,(a-i b)^{5/3}\,d}-\frac{3 i\,\text{Log}\left[(a+i b)^{1/3}-(a+b\,\text{Tan}[c+d x])^{1/3}\right]}{4\,(a+i b)^{5/3}\,d}-\frac{3 b}{2\,(a^2+b^2)\,d\,(a+b\,\text{Tan}[c+d x])^{2/3}}$$

Result (type 3, 768 leaves):

$$\frac{\text{Sec}[c+d x]^2 \left(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]\right)^2 \left(-\frac{3 b}{2 a (a-i b) (a+i b)}+\frac{3 b^2 \text{Sin}[c+d x]}{2 a (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)}{d (a+b \text{Tan}[c+d x])^{5/3}}+$$

$$\frac{1}{4 (a-i b)^{2/3} (a+i b)^{2/3} \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}\left(2\sqrt{3} (a+i b)^{2/3} (-i a+b) \text{ArcTan}\left[\frac{1+\frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right]+2\sqrt{3} (a-i b)^{2/3} (i a+b) \text{ArcTan}\left[\frac{1+\frac{2 (a+b \text{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right]+\right.$$
$$2 i a (a+i b)^{2/3} \text{Log}\left[(a-i b)^{1/3}-(a+b \text{Tan}[c+d x])^{1/3}\right]-2 (a+i b)^{2/3} b \text{Log}\left[(a-i b)^{1/3}-(a+b \text{Tan}[c+d x])^{1/3}\right]-$$
$$2 i a (a-i b)^{2/3} \text{Log}\left[(a+i b)^{1/3}-(a+b \text{Tan}[c+d x])^{1/3}\right]-2 (a-i b)^{2/3} b \text{Log}\left[(a+i b)^{1/3}-(a+b \text{Tan}[c+d x])^{1/3}\right]-$$
$$i a (a+i b)^{2/3} \text{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \text{Tan}[c+d x])^{1/3}+(a+b \text{Tan}[c+d x])^{2/3}\right]+$$
$$(a+i b)^{2/3} b \text{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \text{Tan}[c+d x])^{1/3}+(a+b \text{Tan}[c+d x])^{2/3}\right]+$$
$$i a (a-i b)^{2/3} \text{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \text{Tan}[c+d x])^{1/3}+(a+b \text{Tan}[c+d x])^{2/3}\right]+$$
$$\left.(a-i b)^{2/3} b \text{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \text{Tan}[c+d x])^{1/3}+(a+b \text{Tan}[c+d x])^{2/3}\right]\right) \text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])$$

Problem 696: Unable to integrate problem.

$$\int (d \text{Tan}[e+f x])^n (a+b \text{Tan}[e+f x])^4 \, dx$$

Optimal (type 5, 261 leaves, 8 steps):

$$-\frac{b^2 \left(b^2 (3+n)-a^2 (17+5 n)\right) (d \text{Tan}[e+f x])^{1+n}}{d f (1+n) (3+n)}+$$
$$\frac{\left(a^4-6 a^2 b^2+b^4\right) \text{Hypergeometric2F1}\left[1, \frac{1+n}{2}, \frac{3+n}{2}, -\text{Tan}[e+f x]^2\right] (d \text{Tan}[e+f x])^{1+n}}{d f (1+n)}+\frac{2 a b^3 (4+n) \text{Tan}[e+f x] (d \text{Tan}[e+f x])^{1+n}}{d f (2+n) (3+n)}+$$
$$\frac{4 a b \left(a^2-b^2\right) \text{Hypergeometric2F1}\left[1, \frac{2+n}{2}, \frac{4+n}{2}, -\text{Tan}[e+f x]^2\right] (d \text{Tan}[e+f x])^{2+n}}{d^2 f (2+n)}+\frac{b^2 (d \text{Tan}[e+f x])^{1+n} (a+b \text{Tan}[e+f x])^2}{d f (3+n)}$$

Result (type 8, 25 leaves):

$$\int (d \text{Tan}[e+f x])^n (a+b \text{Tan}[e+f x])^4 \, dx$$

Problem 697: Result more than twice size of optimal antiderivative.

$$\int (d \text{Tan}[e+f x])^n (a+b \text{Tan}[e+f x])^3 \, dx$$

Optimal (type 5, 198 leaves, 7 steps):

$$\frac{a\,b^2\,(5+2\,n)\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)\,(2+n)}+\frac{a\,\left(a^2-3\,b^2\right)\,\mathrm{Hypergeometric2F1}\left[1,\,\frac{1+n}{2},\,\frac{3+n}{2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}}{d\,f\,(1+n)}+$$

$$\frac{b\,\left(3\,a^2-b^2\right)\,\mathrm{Hypergeometric2F1}\left[1,\,\frac{2+n}{2},\,\frac{4+n}{2},\,-\mathrm{Tan}[e+f\,x]^2\right]\,(d\,\mathrm{Tan}[e+f\,x])^{2+n}}{d^2\,f\,(2+n)}+\frac{b^2\,(d\,\mathrm{Tan}[e+f\,x])^{1+n}\,(a+b\,\mathrm{Tan}[e+f\,x])}{d\,f\,(2+n)}$$

Result (type 5, 481 leaves) :

$$\left(3\,a^2\,b\,\mathrm{Cos}[e+f\,x]^3\,\mathrm{Hypergeometric2F1}\left[-\frac{n}{2},\,-\frac{n}{2},\,\frac{2-n}{2},\,\mathrm{Cos}[e+f\,x]^2\right]\,\left(\mathrm{Sin}[e+f\,x]^2\right)^{1+\frac{1}{2}(-2-n)}\,(d\,\mathrm{Tan}[e+f\,x])^n\,(a+b\,\mathrm{Tan}[e+f\,x])^3\right)\Big/$$
$$\left(f\,n\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\right)-\left(b^3\,\mathrm{Cos}[e+f\,x]\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-2-n),\,\frac{1}{2}\,(-2-n),\,-\frac{n}{2},\,\mathrm{Cos}[e+f\,x]^2\right]\right.$$
$$\left.\mathrm{Sin}[e+f\,x]^4\,\left(\mathrm{Sin}[e+f\,x]^2\right)^{\frac{1}{2}(-4-n)}\,(d\,\mathrm{Tan}[e+f\,x])^n\,(a+b\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(-2-n)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\right)-$$
$$\left(3\,a\,b^2\,\mathrm{Cos}[e+f\,x]^2\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}\,(-1-n),\,\frac{1}{2}\,(-1-n),\,\frac{1-n}{2},\,\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]^3\,\left(\mathrm{Sin}[e+f\,x]^2\right)^{\frac{1}{2}(-3-n)}\right.$$
$$\left.(d\,\mathrm{Tan}[e+f\,x])^n\,(a+b\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(-1-n)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\right)-$$
$$\left(a^3\,\mathrm{Cos}[e+f\,x]^4\,\mathrm{Hypergeometric2F1}\left[\frac{1-n}{2},\,\frac{1-n}{2},\,\frac{3-n}{2},\,\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[e+f\,x]\,\left(\mathrm{Sin}[e+f\,x]^2\right)^{\frac{1}{2}(-1-n)}\right.$$
$$\left.(d\,\mathrm{Tan}[e+f\,x])^n\,(a+b\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(1-n)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\right)$$

Problem 702: Unable to integrate problem.

$$\int \mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 6, 175 leaves, 7 steps) :

$$\frac{a\,\mathrm{AppellF1}\left[1+m,\,-\frac{3}{2},\,1,\,2+m,\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\,-i\,\mathrm{Tan}[c+d\,x]\right]\,\mathrm{Tan}[c+d\,x]^{1+m}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{2\,d\,(1+m)\,\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}+$$

$$\frac{a\,\mathrm{AppellF1}\left[1+m,\,-\frac{3}{2},\,1,\,2+m,\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\,i\,\mathrm{Tan}[c+d\,x]\right]\,\mathrm{Tan}[c+d\,x]^{1+m}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{2\,d\,(1+m)\,\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}$$

Result (type 8, 25 leaves) :

$$\int \mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Problem 703: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^m \sqrt{a+b\,\text{Tan}[c+d x]}\, dx$$

Optimal (type 6, 173 leaves, 7 steps):

$$\frac{\text{AppellF1}\left[1+m,-\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},-i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}}{2\,d\,(1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}+$$

$$\frac{\text{AppellF1}\left[1+m,-\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}}{2\,d\,(1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}$$

Result (type 8, 25 leaves):

$$\int \text{Tan}[c+d x]^m \sqrt{a+b\,\text{Tan}[c+d x]}\, dx$$

Problem 704: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d x]^m}{\sqrt{a+b\,\text{Tan}[c+d x]}}\, dx$$

Optimal (type 6, 173 leaves, 7 steps):

$$\frac{\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},-i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}{2\,d\,(1+m)\sqrt{a+b\,\text{Tan}[c+d x]}}+$$

$$\frac{\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}{2\,d\,(1+m)\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 8, 25 leaves):

$$\int \frac{\text{Tan}[c+d x]^m}{\sqrt{a+b\,\text{Tan}[c+d x]}}\, dx$$

Problem 705: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d x]^m}{(a+b\,\text{Tan}[c+d x])^{3/2}}\, dx$$

Optimal (type 6, 179 leaves, 7 steps):

$$\frac{\text{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},-i\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,a\,d\,(1+m)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$

$$\frac{\text{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},i\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,a\,d\,(1+m)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 25 leaves) :

$$\int\frac{\text{Tan}[c+d\,x]^m}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

- **Problem 706: Unable to integrate problem.**

$$\int(d\,\text{Tan}[e+f\,x])^n\,(a+b\,\text{Tan}[e+f\,x])^m\,dx$$

Optimal (type 6, 179 leaves, 7 steps) :

$$\frac{1}{2\,d\,f\,(1+n)}\text{AppellF1}\left[1+n,-m,1,2+n,-\frac{b\,\text{Tan}[e+f\,x]}{a},-i\,\text{Tan}[e+f\,x]\right](d\,\text{Tan}[e+f\,x])^{1+n}\,(a+b\,\text{Tan}[e+f\,x])^m\left(1+\frac{b\,\text{Tan}[e+f\,x]}{a}\right)^{-m}+$$

$$\frac{1}{2\,d\,f\,(1+n)}\text{AppellF1}\left[1+n,-m,1,2+n,-\frac{b\,\text{Tan}[e+f\,x]}{a},i\,\text{Tan}[e+f\,x]\right](d\,\text{Tan}[e+f\,x])^{1+n}\,(a+b\,\text{Tan}[e+f\,x])^m\left(1+\frac{b\,\text{Tan}[e+f\,x]}{a}\right)^{-m}$$

Result (type 8, 25 leaves) :

$$\int(d\,\text{Tan}[e+f\,x])^n\,(a+b\,\text{Tan}[e+f\,x])^m\,dx$$

- **Problem 707: Result unnecessarily involves imaginary or complex numbers.**

$$\int\text{Tan}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 297 leaves, 8 steps) :

$$\frac{\left(2 a^2-b^2 (2+n) (3+n)\right) (a+b \operatorname{Tan}[c+d x])^{1+n}}{b^3 d (1+n) (2+n) (3+n)}-\frac{\sqrt{-b^2}\ \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \operatorname{Tan}[c+d x]}{a-\sqrt{-b^2}}\right] (a+b \operatorname{Tan}[c+d x])^{1+n}}{2 b \left(a-\sqrt{-b^2}\right) d (1+n)}+$$

$$\frac{\sqrt{-b^2}\ \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \operatorname{Tan}[c+d x]}{a+\sqrt{-b^2}}\right] (a+b \operatorname{Tan}[c+d x])^{1+n}}{2 b \left(a+\sqrt{-b^2}\right) d (1+n)}-$$

$$\frac{2 a \operatorname{Tan}[c+d x] (a+b \operatorname{Tan}[c+d x])^{1+n}}{b^2 d (2+n) (3+n)}+\frac{\operatorname{Tan}[c+d x]^2 (a+b \operatorname{Tan}[c+d x])^{1+n}}{b d (3+n)}$$

Result (type 5, 369 leaves) :

$$\frac{1}{2 b^3 d} \left(\operatorname{Sec}[c+d x]^2\right)^{-n/2} (a+b \operatorname{Tan}[c+d x])^n \left(\frac{a+b \operatorname{Tan}[c+d x]}{\sqrt{\operatorname{Sec}[c+d x]^2}}\right)^{-n} \left(\frac{a+b \operatorname{Tan}[c+d x]}{\sqrt{1+\operatorname{Tan}[c+d x]^2}}\right)^n \left(1+\operatorname{Tan}[c+d x]^2\right)^{n/2}$$

$$\left(-\frac{2 b^2 (a+b \operatorname{Tan}[c+d x])}{1+n}-\frac{1}{n} i b^3 \left(\text{Hypergeometric2F1}\left[-n,-n,1-n,\frac{a+i b}{i b-b \operatorname{Tan}[c+d x]}\right] \left(\frac{a+b \operatorname{Tan}[c+d x]}{b (-i+\operatorname{Tan}[c+d x])}\right)^{-n}-\right.\right.$$

$$\left.\text{Hypergeometric2F1}\left[-n,-n,1-n,-\frac{a-i b}{i b+b \operatorname{Tan}[c+d x]}\right] \left(\frac{a+b \operatorname{Tan}[c+d x]}{i b+b \operatorname{Tan}[c+d x]}\right)^{-n}\right)+\frac{1}{6+11 n+6 n^2+n^3}$$

$$\left.2 \left(-2 a^2 b n \operatorname{Tan}[c+d x]+a b^2 n (1+n) \operatorname{Tan}[c+d x]^2+b^3 \left(2+3 n+n^2\right) \operatorname{Tan}[c+d x]^3+a^3 \left(2-2 \left(1+\frac{b \operatorname{Tan}[c+d x]}{a}\right)^{-n}\right)\right)\right)$$

- **Problem 709: Result unnecessarily involves imaginary or complex numbers.**

$$\int \operatorname{Tan}[c+d x]^2 (a+b \operatorname{Tan}[c+d x])^n \, dx$$

Optimal (type 5, 193 leaves, 6 steps) :

$$\frac{(a+b \operatorname{Tan}[c+d x])^{1+n}}{b d (1+n)}-\frac{b\ \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \operatorname{Tan}[c+d x]}{a-\sqrt{-b^2}}\right] (a+b \operatorname{Tan}[c+d x])^{1+n}}{2 \sqrt{-b^2} \left(a-\sqrt{-b^2}\right) d (1+n)}+$$

$$\frac{b\ \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \operatorname{Tan}[c+d x]}{a+\sqrt{-b^2}}\right] (a+b \operatorname{Tan}[c+d x])^{1+n}}{2 \sqrt{-b^2} \left(a+\sqrt{-b^2}\right) d (1+n)}$$

Result (type 5, 191 leaves) :

$$\frac{1}{2\,b\,d}(a+b\,\mathrm{Tan}[c+d\,x])^n\left(\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])}{1+n}+\frac{i\,b\,\mathrm{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{a+i\,b}{i\,b-b\,\mathrm{Tan}[c+d\,x]}\right]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-i+\mathrm{Tan}[c+d\,x])}\right)^{-n}}{n}-\right.$$

$$\left.\frac{i\,b\,\mathrm{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{a-i\,b}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\right]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\right)^{-n}}{n}\right)$$

Problem 711: Result unnecessarily involves imaginary or complex numbers.

$$\int (a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 167 leaves, 5 steps) :

$$\frac{b\,\mathrm{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-\sqrt{-b^2}}\right](a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,\sqrt{-b^2}\,\left(a-\sqrt{-b^2}\right)\,d\,(1+n)}-$$

$$\frac{b\,\mathrm{Hypergeometric2F1}\left[1,\,1+n,\,2+n,\,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+\sqrt{-b^2}}\right](a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,\sqrt{-b^2}\,\left(a+\sqrt{-b^2}\right)\,d\,(1+n)}$$

Result (type 5, 161 leaves) :

$$-\frac{1}{2\,d\,n}i\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(\mathrm{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,-\frac{a+i\,b}{b\,(-i+\mathrm{Tan}[c+d\,x])}\right]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-i+\mathrm{Tan}[c+d\,x])}\right)^{-n}-\right.$$

$$\left.\mathrm{Hypergeometric2F1}\left[-n,\,-n,\,1-n,\,\frac{-a+i\,b}{b\,(i+\mathrm{Tan}[c+d\,x])}\right]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(i+\mathrm{Tan}[c+d\,x])}\right)^{-n}\right)$$

Problem 713: Result unnecessarily involves imaginary or complex numbers.

$$\int \mathrm{Cot}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 5, 245 leaves, 10 steps) :

$$-\frac{\text{Cot}[c+d x] (a+b \text{Tan}[c+d x])^{1+n}}{a d}-\frac{b \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \text{Tan}[c+d x]}{a-\sqrt{-b^2}}\right] (a+b \text{Tan}[c+d x])^{1+n}}{2 \sqrt{-b^2} \left(a-\sqrt{-b^2}\right) d (1+n)}+$$

$$\frac{b \text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b \text{Tan}[c+d x]}{a+\sqrt{-b^2}}\right] (a+b \text{Tan}[c+d x])^{1+n}}{2 \sqrt{-b^2} \left(a+\sqrt{-b^2}\right) d (1+n)}-$$

$$\frac{b n \text{Hypergeometric2F1}\left[1,1+n,2+n,1+\frac{b \text{Tan}[c+d x]}{a}\right] (a+b \text{Tan}[c+d x])^{1+n}}{a^2 d (1+n)}$$

Result (type 5, 222 leaves) :

$$\frac{1}{2 d}(a+b \text{Tan}[c+d x])^n \left(\frac{2 \text{Cot}[c+d x] \left(1+\frac{a \text{Cot}[c+d x]}{b}\right)^{-n} \text{Hypergeometric2F1}\left[1-n,-n,2-n,-\frac{a \text{Cot}[c+d x]}{b}\right]}{-1+n}+\right.$$

$$1/n i \left(\text{Hypergeometric2F1}\left[-n,-n,1-n,\frac{a+i b}{i b-b \text{Tan}[c+d x]}\right] \left(\frac{a+b \text{Tan}[c+d x]}{b (-i+\text{Tan}[c+d x])}\right)^{-n}-\right.$$

$$\left.\left.\text{Hypergeometric2F1}\left[-n,-n,1-n,-\frac{a-i b}{i b+b \text{Tan}[c+d x]}\right] \left(\frac{a+b \text{Tan}[c+d x]}{i b+b \text{Tan}[c+d x]}\right)^{-n}\right)\right)$$

- **Problem 715: Unable to integrate problem.**

$$\int \text{Tan}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])^n \, dx$$

Optimal (type 6, 159 leaves, 9 steps) :

$$\frac{1}{5 d}\text{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},-i \text{Tan}[c+d x],-\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{5/2} (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}+$$

$$\frac{1}{5 d}\text{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},i \text{Tan}[c+d x],-\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{5/2} (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}$$

Result (type 8, 25 leaves) :

$$\int \text{Tan}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])^n \, dx$$

- **Problem 716: Unable to integrate problem.**

$$\int \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])^n \, dx$$

Optimal (type 6, 159 leaves, 9 steps) :

$$\frac{1}{3\,d}\text{AppellF1}\left[\frac{3}{2},\,1,\,-n,\,\frac{5}{2},\,-i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}+$$
$$\frac{1}{3\,d}\text{AppellF1}\left[\frac{3}{2},\,1,\,-n,\,\frac{5}{2},\,i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}$$

Result (type 8, 25 leaves):

$$\int\sqrt{\text{Tan}[c+d\,x]}\,\,(a+b\,\text{Tan}[c+d\,x])^n\,dx$$

Problem 717: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^n}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 153 leaves, 9 steps):

$$\frac{1}{d}\text{AppellF1}\left[\frac{1}{2},\,1,\,-n,\,\frac{3}{2},\,-i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\sqrt{\text{Tan}[c+d\,x]}\,\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}+$$
$$\frac{1}{d}\text{AppellF1}\left[\frac{1}{2},\,1,\,-n,\,\frac{3}{2},\,i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\sqrt{\text{Tan}[c+d\,x]}\,\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}$$

Result (type 8, 25 leaves):

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^n}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Problem 718: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^n}{\text{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 6, 155 leaves, 9 steps):

$$-\frac{\text{AppellF1}\left[-\frac{1}{2},\,1,\,-n,\,\frac{1}{2},\,-i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\text{Tan}[c+d\,x]}}-$$
$$\frac{\text{AppellF1}\left[-\frac{1}{2},\,1,\,-n,\,\frac{1}{2},\,i\,\text{Tan}[c+d\,x],\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\,(a+b\,\text{Tan}[c+d\,x])^n\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 8, 25 leaves):

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^n}{\text{Tan}[c+d\,x]^{3/2}}\,dx$$

Problem 755: Unable to integrate problem.

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,dx$$

Optimal (type 3, 144 leaves, 8 steps):

$$-\frac{2\,(-1)^{3/4}\,\sqrt{a}\,\mathrm{ArcTan}\Big[\frac{(-1)^{3/4}\,\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\Big]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{(1+i)\,\sqrt{a}\,\mathrm{ArcTanh}\Big[\frac{(1+i)\,\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\Big]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}$$

Result (type 8, 30 leaves):

$$\int \frac{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,dx$$

Problem 766: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\mathrm{Cot}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 179 leaves, 9 steps):

$$\frac{5\,(-1)^{1/4}\,a^{5/2}\,\mathrm{ArcTan}\Big[\frac{(-1)^{3/4}\,\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\Big]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{(4-4\,i)\,a^{5/2}\,\mathrm{ArcTanh}\Big[\frac{(1+i)\,\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}\Big]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{a^2\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d\,x]}}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 3, 413 leaves):

$$-\left(i\,e^{-i\,(3\,c+d\,x)}\,\sqrt{e^{i\,d\,x}}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\sqrt{\frac{i\,\left(1+e^{2\,i\,(c+d\,x)}\right)}{-1+e^{2\,i\,(c+d\,x)}}}\,\left(32\,\mathrm{Log}\Big[e^{i\,(c+d\,x)}+\sqrt{-1+e^{2\,i\,(c+d\,x)}}\Big]+\right.\right.$$

$$\left.5\,\sqrt{2}\,\left(-\mathrm{Log}\Big[1-3\,e^{2\,i\,(c+d\,x)}-2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\Big]+\mathrm{Log}\Big[1-3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\Big]\right)\right)$$

$$\left.(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/\left(4\,\sqrt{2}\,d\,\mathrm{Sec}[c+d\,x]^{5/2}\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^{5/2}\right)+\frac{1}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2}$$

$$\mathrm{Cos}[c+d\,x]^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(-\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[2\,c]-i\,\mathrm{Sin}[2\,c])\,\mathrm{Sin}[d\,x]+(-\mathrm{Cos}[2\,c]+i\,\mathrm{Sin}[2\,c])\,\mathrm{Tan}[c])$$
$$(a+i\,a\,\mathrm{Tan}[c+d\,x])^{5/2}$$

Problem 767: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^{5/2}}{\sqrt{\operatorname{Cot}[c+d x]}} \, dx$$

Optimal (type 3, 222 leaves, 10 steps):

$$-\frac{23 (-1)^{3/4} a^{5/2} \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{4 d}-\frac{(4+4 i) a^{5/2} \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{d}-\frac{a^2 \sqrt{a+i a \operatorname{Tan}[c+d x]}}{2 d \operatorname{Cot}[c+d x]^{3/2}}+\frac{9 i a^2 \sqrt{a+i a \operatorname{Tan}[c+d x]}}{4 d \sqrt{\operatorname{Cot}[c+d x]}}$$

Result (type 3, 486 leaves):

$$\frac{1}{d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^2} \operatorname{Cos}[c+d x]^2 \sqrt{\operatorname{Cot}[c+d x]} \left(\operatorname{Sec}[c] (2 \operatorname{Cos}[c]+9 i \operatorname{Sin}[c]) \left(\frac{1}{4} \operatorname{Cos}[2 c]-\frac{1}{4} i \operatorname{Sin}[2 c]\right)+\operatorname{Sec}[c+d x]^2 \left(-\frac{1}{2} \operatorname{Cos}[2 c]+\frac{1}{2} i \operatorname{Sin}[2 c]\right)+i \operatorname{Sec}[c] \operatorname{Sec}[c+d x] \left(\frac{9}{4} \operatorname{Cos}[2 c]-\frac{9}{4} i \operatorname{Sin}[2 c]\right) \operatorname{Sin}[d x]\right) (a+i a \operatorname{Tan}[c+d x])^{5/2}-\frac{1}{8 \sqrt{2} d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^2} \operatorname{Cos}[c+d x]^2 \sqrt{\operatorname{Cot}[c+d x]} \left(23 \sqrt{2} \operatorname{Log}\left[-\frac{2 e^{\frac{7 i c}{2}} \left(i \sqrt{2}+\sqrt{2} e^{i (c+d x)}-2 \sqrt{-1+e^{2 i (c+d x)}}\right)}{23 \left(-i+e^{i (c+d x)}\right)}\right]-23 \sqrt{2} \operatorname{Log}\left[-\frac{2 e^{\frac{7 i c}{2}} \left(-i \sqrt{2}+\sqrt{2} e^{i (c+d x)}+2 \sqrt{-1+e^{2 i (c+d x)}}\right)}{23 \left(i+e^{i (c+d x)}\right)}\right]+64 \operatorname{Log}\left[(\operatorname{Cos}[c]-i \operatorname{Sin}[c]) \left(\operatorname{Cos}[c+d x]+i \operatorname{Sin}[c+d x]+\sqrt{-1+\operatorname{Cos}[2 (c+d x)]+i \operatorname{Sin}[2 (c+d x)]}\right)\right]\right) \sqrt{i (i+\operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2} (\operatorname{Cos}[3 c+d x]-i \operatorname{Sin}[3 c+d x]) (a+i a \operatorname{Tan}[c+d x])^{5/2}$$

Problem 788: Unable to integrate problem.

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x])^3 \, dx$$

Optimal (type 5, 139 leaves, 6 steps):

$$\frac{i a^3 d^2 (1-2 n) (d \operatorname{Cot}[e+f x])^{-2+n}}{f (1-n) (2-n)}+\frac{d^2 (d \operatorname{Cot}[e+f x])^{-2+n} \left(i a^3+a^3 \operatorname{Cot}[e+f x]\right)}{f (1-n)}-\frac{4 i a^3 d^2 (d \operatorname{Cot}[e+f x])^{-2+n} \operatorname{Hypergeometric2F1}[1,-2+n,-1+n,-i \operatorname{Cot}[e+f x]]}{f (2-n)}$$

Result (type 8, 28 leaves):

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x])^3 \, dx$$

Problem 789: Unable to integrate problem.

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x])^2 \, dx$$

Optimal (type 5, 72 leaves, 5 steps):

$$\frac{a^2 d (d \operatorname{Cot}[e+f x])^{-1+n}}{f (1-n)} - \frac{2 a^2 d (d \operatorname{Cot}[e+f x])^{-1+n} \operatorname{Hypergeometric2F1}[1, -1+n, n, -i \operatorname{Cot}[e+f x]]}{f (1-n)}$$

Result (type 8, 28 leaves):

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x])^2 \, dx$$

Problem 790: Unable to integrate problem.

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x]) \, dx$$

Optimal (type 5, 37 leaves, 3 steps):

$$-\frac{i a (d \operatorname{Cot}[e+f x])^n \operatorname{Hypergeometric2F1}[1, n, 1+n, -i \operatorname{Cot}[e+f x]]}{f n}$$

Result (type 8, 26 leaves):

$$\int (d \operatorname{Cot}[e+f x])^n (a+i a \operatorname{Tan}[e+f x]) \, dx$$

Problem 791: Unable to integrate problem.

$$\int \frac{(d \operatorname{Cot}[e+f x])^n}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 5, 157 leaves, 7 steps):

$$-\frac{(d \operatorname{Cot}[e+f x])^{2+n}}{2 d^2 f (i a+a \operatorname{Cot}[e+f x])} - \frac{i n (d \operatorname{Cot}[e+f x])^{2+n} \operatorname{Hypergeometric2F1}\left[1, \frac{2+n}{2}, \frac{4+n}{2}, -\operatorname{Cot}[e+f x]^2\right]}{2 a d^2 f (2+n)} + \frac{(1+n) (d \operatorname{Cot}[e+f x])^{3+n} \operatorname{Hypergeometric2F1}\left[1, \frac{3+n}{2}, \frac{5+n}{2}, -\operatorname{Cot}[e+f x]^2\right]}{2 a d^3 f (3+n)}$$

Result (type 8, 28 leaves):

$$\int \frac{(d \operatorname{Cot}[e+f x])^n}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Problem 792: Unable to integrate problem.

$$\int \frac{(d\,\mathrm{Cot}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 202 leaves, 8 steps):

$$-\frac{i\,n\,(d\,\mathrm{Cot}[e+f\,x])^{3+n}}{4\,a^2\,d^3\,f\,(i+\mathrm{Cot}[e+f\,x])}-\frac{(d\,\mathrm{Cot}[e+f\,x])^{3+n}}{4\,d^3\,f\,(i\,a+a\,\mathrm{Cot}[e+f\,x])^2}+\frac{(1+n)^2\,(d\,\mathrm{Cot}[e+f\,x])^{3+n}\,\mathrm{Hypergeometric2F1}\left[1,\frac{3+n}{2},\frac{5+n}{2},-\mathrm{Cot}[e+f\,x]^2\right]}{4\,a^2\,d^3\,f\,(3+n)}+\frac{i\,n\,(2+n)\,(d\,\mathrm{Cot}[e+f\,x])^{4+n}\,\mathrm{Hypergeometric2F1}\left[1,\frac{4+n}{2},\frac{6+n}{2},-\mathrm{Cot}[e+f\,x]^2\right]}{4\,a^2\,d^4\,f\,(4+n)}$$

Result (type 8, 28 leaves):

$$\int \frac{(d\,\mathrm{Cot}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Problem 793: Unable to integrate problem.

$$\int (d\,\mathrm{Cot}[e+f\,x])^n\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^m\,dx$$

Optimal (type 6, 95 leaves, 4 steps):

$$\frac{1}{f\,(1-n)}\mathrm{AppellF1}[1-n,1-m,1,2-n,-i\,\mathrm{Tan}[e+f\,x],i\,\mathrm{Tan}[e+f\,x]]\,(d\,\mathrm{Cot}[e+f\,x])^n\,(1+i\,\mathrm{Tan}[e+f\,x])^{-m}\,\mathrm{Tan}[e+f\,x]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^m$$

Result (type 8, 28 leaves):

$$\int (d\,\mathrm{Cot}[e+f\,x])^n\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^m\,dx$$

Problem 794: Unable to integrate problem.

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 79 leaves, 5 steps):

$$-\frac{1}{d}2\,\mathrm{AppellF1}\left[-\frac{1}{2},1-n,1,\frac{1}{2},-i\,\mathrm{Tan}[c+d\,x],i\,\mathrm{Tan}[c+d\,x]\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n$$

Result (type 8, 28 leaves):

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Problem 795: Unable to integrate problem.

$$\int \sqrt{\mathrm{Cot}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,dx$$

Optimal (type 6, 79 leaves, 5 steps):

$$\frac{2\,\text{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{d\,\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 8, 28 leaves):

$$\int\sqrt{\text{Cot}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^{n}\,dx$$

- **Problem 796: Unable to integrate problem.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{\sqrt{\text{Cot}[c+d\,x]}}\,dx$$

Optimal (type 6, 81 leaves, 5 steps):

$$\frac{2\,\text{AppellF1}\left[\frac{3}{2},1-n,1,\frac{5}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{3\,d\,\text{Cot}[c+d\,x]^{3/2}}$$

Result (type 8, 28 leaves):

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{\sqrt{\text{Cot}[c+d\,x]}}\,dx$$

- **Problem 797: Unable to integrate problem.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{\text{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 6, 81 leaves, 5 steps):

$$\frac{2\,\text{AppellF1}\left[\frac{5}{2},1-n,1,\frac{7}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{5\,d\,\text{Cot}[c+d\,x]^{5/2}}$$

Result (type 8, 28 leaves):

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^{n}}{\text{Cot}[c+d\,x]^{3/2}}\,dx$$

- **Problem 826: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cot}[c+d\,x]^{5/2}}{(a+b\,\text{Tan}[c+d\,x])^{2}}\,dx$$

Optimal (type 3, 398 leaves, 18 steps):

$$-\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}+\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}-$$

$$\frac{b^{7/2}\left(9a^2+5b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{a^{7/2}\left(a^2+b^2\right)^2 d}+\frac{b\left(4a^2+5b^2\right)\sqrt{\text{Cot}[c+dx]}}{a^3\left(a^2+b^2\right)d}-\frac{\left(2a^2+5b^2\right)\text{Cot}[c+dx]^{3/2}}{3a^2\left(a^2+b^2\right)d}+\frac{b^2\,\text{Cot}[c+dx]^{5/2}}{a\left(a^2+b^2\right)d\,(b+a\,\text{Cot}[c+dx])}+$$

$$\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}$$

Result (type 3, 771 leaves) :

$$\frac{1}{d\,(b+a\,\text{Cot}[c+dx])^2}$$

$$\sqrt{\text{Cot}[c+dx]}\,\text{Csc}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2\left(\frac{4b}{a^3}-\frac{2\,\text{Cot}[c+dx]}{3a^2}+\frac{b^4\,\text{Sin}[c+dx]}{a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}\right)-$$

$$\frac{1}{2a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(b+a\,\text{Cot}[c+dx])^2}\,\text{Csc}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2$$

$$\left(-\frac{2\left(a^4-4a^2b^2-5b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\,\text{Sec}[c+dx]}{\sqrt{a}\sqrt{b}\left(1+\text{Cot}[c+dx]^2\right)^2(a+b\,\text{Tan}[c+dx])}-\left(a^{7/2}\,\text{Cos}[2\,(c+dx)]\,(b+a\,\text{Cot}[c+dx])\right.\right.$$

$$\text{Csc}[c+dx]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\sqrt{a}\sqrt{b}\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\right.\right.\right.$$

$$\left.\left.\left.\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)$$

$$\left.\text{Sec}[c+dx]\right)\Big/\left(2\sqrt{b}\left(a^2+b^2\right)\left(-1+\text{Cot}[c+dx]^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])\right)+$$

$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])}\,a^3\,b\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^2$$

$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2\,(c+dx)]\right)$$

Problem 827: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cot}[c+d x]^{3/2}}{(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 357 leaves, 17 steps):

$$-\frac{\left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{5/2} \left(7 a^2+3 b^2\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{a^{5/2} \left(a^2+b^2\right)^2 d}-\frac{\left(2 a^2+3 b^2\right) \sqrt{\text{Cot}[c+d x]}}{a^2 \left(a^2+b^2\right) d}+\frac{b^2 \text{Cot}[c+d x]^{3/2}}{a \left(a^2+b^2\right) d\, (b+a\, \text{Cot}[c+d x])}-$$
$$\frac{\left(a^2-2 a b-b^2\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2-2 a b-b^2\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}$$

Result (type 3, 472 leaves):

$$\frac{1}{2 d}\left(\frac{1}{2 a^{5/2} \left(a^2+b^2\right)^2}\left(-2 \sqrt{2}\, a^{5/2} \left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]+2 \sqrt{2}\, a^{5/2} \left(a^2+2 a b-b^2\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]+\right.\right.$$
$$28 a^2 b^{5/2} \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+12 b^{9/2} \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]-\sqrt{2}\, a^{9/2} \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]+$$
$$2 \sqrt{2}\, a^{7/2} b\, \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]+\sqrt{2}\, a^{5/2} b^2 \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]+$$
$$\sqrt{2}\, a^{9/2} \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-2 \sqrt{2}\, a^{7/2} b\, \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-$$
$$\left.\left.\sqrt{2}\, a^{5/2} b^2 \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)-\frac{2 \sqrt{\text{Cot}[c+d x]} \left(2+\frac{b^3 \text{Sin}[c+d x]}{(a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)}{a^2}\right)$$

Problem 832: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\text{Cot}[c+d x]^{7/2} (a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 357 leaves, 17 steps):

$$\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}-\frac{\left(a^2-2ab-b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^2 d}+$$

$$\frac{a^{5/2}\left(3a^2+7b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{b^{5/2}\left(a^2+b^2\right)^2 d}+\frac{3a^2+2b^2}{b^2\left(a^2+b^2\right)d\sqrt{\text{Cot}[c+dx]}}-\frac{a^2}{b\left(a^2+b^2\right)d\sqrt{\text{Cot}[c+dx]}\,(b+a\,\text{Cot}[c+dx])}-$$

$$\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}+\frac{\left(a^2+2ab-b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^2 d}$$

Result (type 3, 748 leaves):

$$\frac{\sqrt{\text{Cot}[c+dx]}\,\text{Csc}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2\left(\frac{a^3\,\text{Sin}[c+dx]}{b^2\left(a^2+b^2\right)(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}+\frac{2\,\text{Tan}[c+dx]}{b^2}\right)}{d\,(b+a\,\text{Cot}[c+dx])^2}-$$

$$\frac{1}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^2\,d\,(b+a\,\text{Cot}[c+dx])^2}$$

$$\text{Csc}[c+dx]^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2\left(-\frac{2\left(3a^3+3ab^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\,\text{Sec}[c+dx]}{\sqrt{a}\sqrt{b}\left(1+\text{Cot}[c+dx]^2\right)^2(a+b\,\text{Tan}[c+dx])}+\right.$$

$$\left(\sqrt{a}\,b^{3/2}\,\text{Cos}[2\,(c+dx)]\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\sqrt{a}\sqrt{b}\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+\right.$$

$$\left.\left.\left.(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]\right)\Big/$$

$$\left(2\left(a^2+b^2\right)\left(-1+\text{Cot}[c+dx]^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])\right)-\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])}$$

$$b^3\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^2$$

$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]-\right.\right.$$

$$\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2\,(c+dx)]\right)$$

Problem 833: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cot}[c+d\,x]^{5/2}}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 493 leaves, 19 steps):

$$-\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3 d}+\frac{(a+b)\left(a^2-4\,a\,b+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3 d}-$$
$$\frac{b^{7/2}\left(99\,a^4+102\,a^2\,b^2+35\,b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{4\,a^{9/2}\left(a^2+b^2\right)^3 d}+\frac{b\left(24\,a^4+67\,a^2\,b^2+35\,b^4\right)\sqrt{\text{Cot}[c+d\,x]}}{4\,a^4\left(a^2+b^2\right)^2 d}-$$
$$\frac{\left(8\,a^4+67\,a^2\,b^2+35\,b^4\right)\text{Cot}[c+d\,x]^{3/2}}{12\,a^3\left(a^2+b^2\right)^2 d}+\frac{b^2\,\text{Cot}[c+d\,x]^{7/2}}{2\,a\left(a^2+b^2\right) d\,(b+a\,\text{Cot}[c+d\,x])^2}+\frac{b^2\left(15\,a^2+7\,b^2\right)\text{Cot}[c+d\,x]^{5/2}}{4\,a^2\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+d\,x])}+$$
$$\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4\,a\,b+b^2\right)\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3 d}$$

Result (type 3, 899 leaves):

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^3}\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{b\,\left(12\,a^4+24\,a^2\,b^2+13\,b^4\right)}{2\,a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{2\,\text{Cot}[c+d\,x]}{3\,a^3}-\right.$$

$$\left.\frac{b^5}{2\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{3\,\left(7\,a^2\,b^4\,\text{Sin}[c+d\,x]+3\,b^6\,\text{Sin}[c+d\,x]\right)}{4\,a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)-$$

$$\frac{1}{8\,a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^3}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(-\left(2\,\left(4\,a^6-28\,a^4\,b^2-67\,a^2\,b^4-35\,b^6\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\right)\right/$$

$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2\,(a+b\,\text{Tan}[c+d\,x])\right)-\left(\left(4\,a^6-4\,a^4\,b^2\right)\,\text{Cos}[2\,(c+d\,x)]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\right.$$

$$\left(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\right.\right.\right.$$

$$\left.\left.\left.\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)$$

$$\left.\text{Sec}[c+d\,x]\right)\Big/\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d\,x]^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])}\,2\,a^5\,b\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\Bigg)$$

- **Problem 834: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 444 leaves, 18 steps):

$$-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{b^{5/2}\left(63a^4+46a^2b^2+15b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{4a^{7/2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(8a^4+31a^2b^2+15b^4\right)\sqrt{\text{Cot}[c+dx]}}{4a^3\left(a^2+b^2\right)^2 d}+\frac{b^2\,\text{Cot}[c+dx]^{5/2}}{2a\left(a^2+b^2\right)d\,(b+a\,\text{Cot}[c+dx])^2}+\frac{b^2\left(13a^2+5b^2\right)\text{Cot}[c+dx]^{3/2}}{4a^2\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+dx])}-$$

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a+b)\left(a^2-4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}$$

Result (type 3, 874 leaves) :

$$\frac{1}{d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\sqrt{\mathrm{Cot}[c+d\,x]}\;\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{4\,a^4+8\,a^2\,b^2+5\,b^4}{2\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{b^4}{2\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-17\,a^2\,b^3\,\mathrm{Sin}[c+d\,x]-5\,b^5\,\mathrm{Sin}[c+d\,x]}{4\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)-$$
$$\frac{1}{8\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{2\,(16\,a^4\,b+31\,a^2\,b^3+15\,b^5)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]}{\sqrt{a}\,\sqrt{b}\,(1+\mathrm{Cot}[c+d\,x]^2)^2\,(a+b\,\mathrm{Tan}[c+d\,x])}-\right.$$
$$\frac{1}{(a^2+b^2)\,(-1+\mathrm{Cot}[c+d\,x]^2)\,(1+\mathrm{Cot}[c+d\,x]^2)\,(a+b\,\mathrm{Tan}[c+d\,x])}4\,a^{7/2}\,\sqrt{b}\,\mathrm{Cos}[2\,(c+d\,x)]\,(b+a\,\mathrm{Cot}[c+d\,x])$$
$$\mathrm{Csc}[c+d\,x]^3\left(-4\,(a^2-b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a-b)\right.\right.$$
$$\left.\left.\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)$$
$$\mathrm{Sec}[c+d\,x]-\frac{1}{4\,(a^2+b^2)\,(1+\mathrm{Cot}[c+d\,x]^2)\,(a+b\,\mathrm{Tan}[c+d\,x])}(4\,a^5-4\,a^3\,b^2)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]-\right.\right.$$
$$\left.\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]\right)$$

- **Problem 835: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Cot}[c+d\,x]}}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 396 leaves, 17 steps):

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{b^{3/2}\left(35a^4+6a^2b^2+3b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{4a^{5/2}\left(a^2+b^2\right)^3 d}+\frac{b^2\,\text{Cot}[c+dx]^{3/2}}{2a\left(a^2+b^2\right)d\,(b+a\,\text{Cot}[c+dx])^2}+\frac{b^2\left(11a^2+3b^2\right)\sqrt{\text{Cot}[c+dx]}}{4a^2\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+dx])}-$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}$$

Result (type 3, 857 leaves):

$$\frac{1}{d\,(b+a\,\text{Cot}[c+dx])^3}\sqrt{\text{Cot}[c+dx]}\,\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(\frac{b^3}{2a^2(a-\mathrm{i}\,b)^2(a+\mathrm{i}\,b)^2}-\frac{b^3}{2(a-\mathrm{i}\,b)^2(a+\mathrm{i}\,b)^2(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2}+\frac{13a^2b^2\,\text{Sin}[c+dx]+b^4\,\text{Sin}[c+dx]}{4a^2(a-\mathrm{i}\,b)^2(a+\mathrm{i}\,b)^2(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}\right)+$$

$$\frac{1}{8a^2(a-\mathrm{i}\,b)^2(a+\mathrm{i}\,b)^2 d\,(b+a\,\text{Cot}[c+dx])^3}\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(-\frac{2\left(4a^4+7a^2b^2+3b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\,\text{Sec}[c+dx]}{\sqrt{a}\sqrt{b}\left(1+\text{Cot}[c+dx]^2\right)^2(a+b\,\text{Tan}[c+dx])}-\right.$$

$$\left(\left(4a^4-4a^2b^2\right)\text{Cos}[2(c+dx)]\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\sqrt{a}\sqrt{b}\left(-2(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+\right.$$

$$\left.\left.\left.(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]\right)\Big/$$

$$\left(2\sqrt{a}\sqrt{b}\left(a^2+b^2\right)\left(-1+\text{Cot}[c+dx]^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])\right)+\frac{1}{\left(a^2+b^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])}$$

$$2a^3b\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^2$$

$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\left(-2(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]-\right.\right.$$

$$\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2(c+dx)]\right)$$

- **Problem 836: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{\text{Cot}[c+d x]}\,(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 392 leaves, 17 steps):

$$\frac{(a-b)\left(a^2+4 a b+b^2\right) \text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4 a b+b^2\right) \text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+$$

$$\frac{\sqrt{b}\left(15 a^4-18 a^2 b^2-b^4\right) \text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 a^{3/2}\left(a^2+b^2\right)^3 d}+\frac{b^2 \sqrt{\text{Cot}[c+d x]}}{2 a\left(a^2+b^2\right) d\,(b+a\,\text{Cot}[c+d x])^2}-\frac{b\left(9 a^2+b^2\right) \sqrt{\text{Cot}[c+d x]}}{4 a\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+d x])}+$$

$$\frac{(a+b)\left(a^2-4 a b+b^2\right) \text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4 a b+b^2\right) \text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2}\left(a^2+b^2\right)^3 d}$$

Result (type 3, 841 leaves):

$$\frac{1}{d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\sqrt{\mathrm{Cot}[c+d\,x]}\;\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(-\frac{b^2}{2\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{a\,b^2}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{3\,\left(3\,a^2\,b\,\mathrm{Sin}[c+d\,x]-b^3\,\mathrm{Sin}[c+d\,x]\right)}{4\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$

$$\frac{1}{8\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\,\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\,\left(a^2\,b+b^3\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]}{\sqrt{a}\,\sqrt{b}\,\left(1+\mathrm{Cot}[c+d\,x]^2\right)^2\,(a+b\,\mathrm{Tan}[c+d\,x])}-\right.$$

$$\frac{1}{\left(a^2+b^2\right)\,\left(-1+\mathrm{Cot}[c+d\,x]^2\right)\,\left(1+\mathrm{Cot}[c+d\,x]^2\right)\,(a+b\,\mathrm{Tan}[c+d\,x])}\,4\,a^{3/2}\,\sqrt{b}\,\mathrm{Cos}[2\,(c+d\,x)]\,(b+a\,\mathrm{Cot}[c+d\,x])$$

$$\mathrm{Csc}[c+d\,x]^3\,\left(-4\,\left(a^2-b^2\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a-b)\right.\right.$$

$$\left.\left.\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)$$

$$\mathrm{Sec}[c+d\,x]-\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\mathrm{Cot}[c+d\,x]^2\right)\,(a+b\,\mathrm{Tan}[c+d\,x])}\,\left(4\,a^3-4\,a\,b^2\right)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]\right)$$

- **Problem 837: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 385 leaves, 17 steps):

$$-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3a^4-26a^2b^2+3b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{4\sqrt{a}\sqrt{b}\left(a^2+b^2\right)^3 d}-\frac{b\sqrt{\text{Cot}[c+dx]}}{2\left(a^2+b^2\right)d\,(b+a\,\text{Cot}[c+dx])^2}+\frac{\left(5a^2-3b^2\right)\sqrt{\text{Cot}[c+dx]}}{4\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+dx])}+$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}$$

Result (type 3, 828 leaves) :

$$\frac{1}{d\,(b+a\,\text{Cot}[c+dx])^3}\sqrt{\text{Cot}[c+dx]}\,\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(\frac{b}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{a^2 b}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2}+\frac{5a^2\,\text{Sin}[c+dx]-7b^2\,\text{Sin}[c+dx]}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}\right)-$$

$$\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\text{Cot}[c+dx])^3}\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(-\frac{2\left(a^2+b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\,\text{Sec}[c+dx]}{\sqrt{a}\sqrt{b}\left(1+\text{Cot}[c+dx]^2\right)^2(a+b\,\text{Tan}[c+dx])}-\right.$$

$$\left(\left(4a^2-4b^2\right)\text{Cos}[2\,(c+dx)]\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\sqrt{a}\sqrt{b}\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+\right.$$

$$\left.\left.\left.(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]\right)\Big/$$

$$\left(2\sqrt{a}\sqrt{b}\left(a^2+b^2\right)\left(-1+\text{Cot}[c+dx]^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])\right)+\frac{1}{\left(a^2+b^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])}$$

$$2ab\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^2$$

$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2\,(c+dx)]\right)$$

- **Problem 838: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 385 leaves, 17 steps):

$$-\frac{(a-b)\,\left(a^2+4\,a\,b+b^2\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+\frac{(a-b)\,\left(a^2+4\,a\,b+b^2\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^3\,d}-$$
$$\frac{\sqrt{a}\,\left(a^4+18\,a^2\,b^2-15\,b^4\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{4\,b^{3/2}\,\left(a^2+b^2\right)^3\,d}+\frac{a\,\sqrt{\text{Cot}[c+d\,x]}}{2\,\left(a^2+b^2\right)\,d\,(b+a\,\text{Cot}[c+d\,x])^2}-\frac{a\,\left(a^2-7\,b^2\right)\,\sqrt{\text{Cot}[c+d\,x]}}{4\,b\,\left(a^2+b^2\right)^2\,d\,(b+a\,\text{Cot}[c+d\,x])}-$$
$$\frac{(a+b)\,\left(a^2-4\,a\,b+b^2\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}+\frac{(a+b)\,\left(a^2-4\,a\,b+b^2\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^3\,d}$$

Result (type 3, 835 leaves):

$$\frac{1}{d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\sqrt{\mathrm{Cot}[c+d\,x]}\;\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{a}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{a^3}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{-a^3\,\mathrm{Sin}[c+d\,x]+11\,a\,b^2\,\mathrm{Sin}[c+d\,x]}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)+$$
$$\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,d\,(b+a\,\mathrm{Cot}[c+d\,x])^3}\,\mathrm{Csc}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{2\,(a^3+a\,b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^3\,\mathrm{Sec}[c+d\,x]}{\sqrt{a}\,\sqrt{b}\,(1+\mathrm{Cot}[c+d\,x]^2)^2\,(a+b\,\mathrm{Tan}[c+d\,x])}+\right.$$
$$\frac{1}{(a^2+b^2)\,(-1+\mathrm{Cot}[c+d\,x]^2)\,(1+\mathrm{Cot}[c+d\,x]^2)\,(a+b\,\mathrm{Tan}[c+d\,x])}\,4\,\sqrt{a}\,b^{3/2}\,\mathrm{Cos}[2\,(c+d\,x)]\,(b+a\,\mathrm{Cot}[c+d\,x])$$
$$\mathrm{Csc}[c+d\,x]^3\left(-4\,(a^2-b^2)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a-b)\right.\right.$$
$$\left.\left.\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+(a+b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)$$
$$\mathrm{Sec}[c+d\,x]-\frac{1}{4\,(a^2+b^2)\,(1+\mathrm{Cot}[c+d\,x]^2)\,(a+b\,\mathrm{Tan}[c+d\,x])}\,(-4\,a^2\,b+4\,b^3)\,(b+a\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]-\right.\right.$$
$$\left.\left.\left.(a-b)\,\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]\right)\right)\right)\,\mathrm{Sec}[c+d\,x]^2\,\mathrm{Sin}[2\,(c+d\,x)]\right)$$

- **Problem 839: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\mathrm{Cot}[c+d\,x]^{7/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 396 leaves, 17 steps):

$$\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-\frac{(a+b)\left(a^2-4ab+b^2\right)\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]}{\sqrt{2}\left(a^2+b^2\right)^3 d}-$$

$$\frac{a^{3/2}\left(3a^4+6a^2b^2+35b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]}{4b^{5/2}\left(a^2+b^2\right)^3 d}-\frac{a^2\sqrt{\text{Cot}[c+dx]}}{2b\left(a^2+b^2\right)d\,(b+a\,\text{Cot}[c+dx])^2}-\frac{a^2\left(3a^2+11b^2\right)\sqrt{\text{Cot}[c+dx]}}{4b^2\left(a^2+b^2\right)^2 d\,(b+a\,\text{Cot}[c+dx])}-$$

$$\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}+\frac{(a-b)\left(a^2+4ab+b^2\right)\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]}{2\sqrt{2}\left(a^2+b^2\right)^3 d}$$

Result (type 3, 860 leaves):

$$\frac{1}{d\,(b+a\,\text{Cot}[c+dx])^3}\sqrt{\text{Cot}[c+dx]}\,\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(\frac{a^2}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b}-\frac{a^4}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^2}-\frac{3\left(a^4\,\text{Sin}[c+dx]+5a^2b^2\,\text{Sin}[c+dx]\right)}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}\right)+$$

$$\frac{1}{8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2\,d\,(b+a\,\text{Cot}[c+dx])^3}\text{Csc}[c+dx]^3\,(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])^3$$

$$\left(-\frac{2\left(3a^4+7a^2b^2+4b^4\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\,\text{Sec}[c+dx]}{\sqrt{a}\sqrt{b}\left(1+\text{Cot}[c+dx]^2\right)^2(a+b\,\text{Tan}[c+dx])}-\right.$$

$$\left(\left(4a^2b^2-4b^4\right)\text{Cos}[2\,(c+dx)]\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\sqrt{a}\sqrt{b}\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+\right.$$

$$\left.\left.\left.(a+b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]\right)\Big/$$

$$\left(2\sqrt{a}\sqrt{b}\left(a^2+b^2\right)\left(-1+\text{Cot}[c+dx]^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])\right)+\frac{1}{\left(a^2+b^2\right)\left(1+\text{Cot}[c+dx]^2\right)(a+b\,\text{Tan}[c+dx])}$$

$$2ab^3\,(b+a\,\text{Cot}[c+dx])\,\text{Csc}[c+dx]^2$$

$$\left(-8\sqrt{a}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\sqrt{\text{Cot}[c+dx]}}{\sqrt{b}}\right]+\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]-\text{Log}\left[1+\sqrt{2}\sqrt{\text{Cot}[c+dx]}+\text{Cot}[c+dx]\right]\right)\right)\right)\text{Sec}[c+dx]^2\,\text{Sin}[2\,(c+dx)]\right)$$

Problem 840: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^{7/2} \sqrt{a+b \text{Tan}[c+d x]}\, dx$$

Optimal (type 3, 261 leaves, 11 steps):

$$\frac{\sqrt{i a-b}\ \text{ArcTan}\left[\frac{\sqrt{i a-b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}-\frac{\sqrt{i a+b}\ \text{ArcTanh}\left[\frac{\sqrt{i a+b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{2\left(15 a^2+2 b^2\right) \sqrt{\text{Cot}[c+d x]}\ \sqrt{a+b \text{Tan}[c+d x]}}{15 a^2 d}-\frac{2 b \text{Cot}[c+d x]^{3/2} \sqrt{a+b \text{Tan}[c+d x]}}{15 a d}-\frac{2 \text{Cot}[c+d x]^{5/2} \sqrt{a+b \text{Tan}[c+d x]}}{5 d}$$

Result (type 4, 4427 leaves):

$$\frac{\sqrt{\text{Cot}[c+d x]}\left(\frac{4\left(9 a^2+b^2\right)}{15 a^2}-\frac{2 b \text{Cot}[c+d x]}{15 a}-\frac{2}{5} \text{Csc}[c+d x]^2\right) \sqrt{a+b \text{Tan}[c+d x]}}{d}-$$
$$\left(4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]}\right.$$
$$\left(i b \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.$$
$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$
$$\left(-\frac{b \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{a \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}$$

$$\left.\left.\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\right/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\right.$$

$$\left(\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.\left.(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\right/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\Bigg) \Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\;+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \left(\text{i}\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\left(\text{i}\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\text{i}\,b)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Bigg)$$

- **Problem 841: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 221 leaves, 11 steps) :

$$\frac{i\sqrt{i\,a-b}\;\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\;\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{i\sqrt{i\,a+b}\;\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\;\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}{d}-$$

$$\frac{2\,b\,\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,a\,d}-\frac{2\,\text{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 4207 leaves):

$$\frac{\left(-\frac{2\,b}{3\,a}-\frac{2}{3}\,\text{Cot}[c+d\,x]\right)\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-$$

$$\Bigg(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]\;\Bigg(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+i\,(a+i\,b)\;\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\;i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i\,a+b)\;\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\;i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)\Bigg/\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\Bigg(-\Bigg(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\Bigg(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\left.\left.(\mathbb{i}\,a+b)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\left(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathbb{i}\,a\,\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+\right.\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\left.\left.(\mathbb{i}\,a+b)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Csc}[c+d\,x]^2\left(-\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(i\,a+b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(i\,a+b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{(a+i b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\frac{i(i a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right)$$

- **Problem 842: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 3, 179 leaves, 9 steps):

$$-\frac{\sqrt{i a-b}\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{d}+$$

$$\frac{\sqrt{i a+b}\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{d}-\frac{2\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}{d}$$

Result (type 4, 4387 leaves):

$$-\frac{2\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}{d}+\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\right.$$

$$\left(i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i\, b)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (a-i\, b)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{b\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}} - \frac{a\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

$$\left.\sqrt{a+b\,\text{Tan}[c+d\,x]}\right) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.\right.$$

$$(a+i\, b)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.\left.(a-i\, b)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right) \Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left(\text{i}\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\text{i}\,b)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\,b\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)$$

$$\left.\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathbb{i}\,b\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}\,(a+\mathbb{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 843: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\sqrt{\operatorname{Cot}[c+d\,x]}\,\sqrt{a+b\operatorname{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 155 leaves, 8 steps):

$$-\frac{i\,\sqrt{i\,a-b}\,\operatorname{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{\sqrt{a+b\operatorname{Tan}[c+d\,x]}}\right]\sqrt{\operatorname{Cot}[c+d\,x]}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{d}-\frac{i\,\sqrt{i\,a+b}\,\operatorname{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{\sqrt{a+b\operatorname{Tan}[c+d\,x]}}\right]\sqrt{\operatorname{Cot}[c+d\,x]}\,\sqrt{\operatorname{Tan}[c+d\,x]}}{d}$$

Result (type 4, 4157 leaves):

$$-\left(\left(4\operatorname{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\operatorname{Csc}[c+d\,x]\left(-i\,a\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(i\,a+b)\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\sqrt{a+b\,\text{Tan}[c+d x]}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\sqrt{\text{Sec}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\right.$$

$$\left(\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$i(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(i a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$i(a+i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left((\mathbb{i}\, a+b)\, \text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] \sqrt{\text{Sec}[c+d\,x]}\right) \Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right) -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 3\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(-\mathbb{i}\, a\, \text{EllipticF}\left[\mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\, b)\, \text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.(\mathbb{i}\, a+b)\, \text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\ 2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(i\,a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(i\,a+b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\right.$$

$$\left.\left.\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\mathrm{i}\,a+b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]}\left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{(a+i b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\left.\left.\frac{i(i a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right)\right)$$

- **Problem 844: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{\text{Cot}[c+d x]}}\,dx$$

Optimal (type 3, 211 leaves, 12 steps):

$$\frac{\sqrt{i a-b}\ \text{ArcTan}\left[\frac{\sqrt{i a-b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\ \text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}+$$

$$\frac{2\sqrt{b}\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\ \text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}-\frac{\sqrt{i a+b}\ \text{ArcTanh}\left[\frac{\sqrt{i a+b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\ \text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}$$

Result (type 4, 6287 leaves) :

$$\Bigg(4 a\Bigg(\frac{b\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+$$

$$\frac{(-i a+b)\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i b\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}-\frac{b\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\Bigg)$$

$$\left.\sqrt{\mathrm{Sec}[c+d\,x]}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\;d\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\right.$$

$$\left(\left(a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\frac{b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.\right.$$

$$\frac{(-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\text{Sec}[c+d\,x]}\, \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right) \Big/$$

$$\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\, \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right) +$$

$$\left(2\, a\sqrt{\text{Cot}[c+d\,x]}\left(\frac{b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}} +\right.\right.$$

$$\frac{(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{\mathrm{i}\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{\mathrm{i}\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\;\left(\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}\;+\right.$$

$$\frac{(-\text{i}\,a+b)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\text{i}\left(b+\sqrt{a^2+b^2}\right)}\;-$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\text{i}\,a+b+\sqrt{a^2+b^2}}\;+$$

$$\frac{\text{i}\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\text{i}\,a+b+\sqrt{a^2+b^2}}\;-$$

$$\left.\frac{b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;-$$

$$\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}\,2\,a\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(-i\,a+b)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}}\,4\,a\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,(-i\,a+b)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\left(a+i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(i\,a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\left(i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)\Bigg)$$

- **Problem 845: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\mathrm{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 244 leaves, 14 steps):

$$\frac{i\sqrt{i\,a-b}\;\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{a\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{b}\,d}+$$

$$\frac{i\sqrt{i\,a+b}\;\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 8071 leaves):

$$\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\sqrt{\mathrm{Cot}[c+d\,x]}}+\left(2\,a\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left(-\frac{a\,\text{Cos}[2\,(c+d\,x)]\,\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[2\,(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\; d \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\Bigg/\left(a^2\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+a\sqrt{\text{Cot}[c+d\,x]}\,\Bigg($$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,\mathrm{i}\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\;(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\;\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}}\;a\,\sqrt{\mathrm{Cot}[c+d\,x]}$$

$$\left(-\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\mathrm{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}-\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}a\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+$$

$$\frac{2\,i\,a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\left(a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(\mathrm{i}\,a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)\Bigg)$$

- **Problem 846: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{9/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 306 leaves, 12 steps):

$$-\frac{(i\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{(i\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{4\,b\,(70\,a^2+3\,b^2)\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a^2\,d}+$$

$$\frac{2\,(35\,a^2-3\,b^2)\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a\,d}-\frac{16\,b\,\mathrm{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{35\,d}-\frac{2\,a\,\mathrm{Cot}[c+d\,x]^{7/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{7\,d}$$

Result (type 4, 4666 leaves):

$$\Bigg(\mathrm{Cos}[c+d\,x]\,\sqrt{\mathrm{Cot}[c+d\,x]}$$

$$\left(\frac{4\,b\,(82\,a^2+3\,b^2)}{105\,a^2}+\frac{2\,(50\,a^2\,\mathrm{Cos}[c+d\,x]-3\,b^2\,\mathrm{Cos}[c+d\,x])\,\mathrm{Csc}[c+d\,x]}{105\,a}-\frac{16}{35}\,b\,\mathrm{Csc}[c+d\,x]^2-\frac{2}{7}\,a\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\right)$$

$$(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Bigg)\Big/\,(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]))+$$

$$\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{2\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right.$$

$$\left(-\left(\mathrm{i}\, a \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\left(\mathrm{i}\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\,i\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}2\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left. i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\, (b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Csc}[c+d x]^2 \Bigg(\left(a^2-b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 4 i \text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{i\,(a^2-b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 847: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{7/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 264 leaves, 11 steps):

$$-\frac{i\,(i\,a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{i\,(i\,a+b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}+$$

$$\frac{2\,(5\,a^2-b^2)\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,a\,d}-\frac{4\,b\,\text{Cot}[c+d\,x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,d}-\frac{2\,a\,\text{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,d}$$

Result (type 4, 4558 leaves):

$$\frac{\text{Cos}[c+d\,x]\sqrt{\text{Cot}[c+d\,x]}\left(\frac{2\,(6\,a^2-b^2)}{5\,a}-\frac{4}{5}\,b\,\text{Cot}[c+d\,x]-\frac{2}{5}\,a\,\text{Csc}[c+d\,x]^2\right)(a+b\,\text{Tan}[c+d\,x])^{3/2}}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}-$$

$$\Bigg(4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Cos}[c+d\,x]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-\frac{2\,a\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{b^2\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}(a+b\,\text{Tan}[c+d\,x])^{3/2}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right.$$

$$\left(\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left. i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\ (b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Csc}[c+d x]^2 \Bigg(2 i a b \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$(a-i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 4 \text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{a\,b\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 848: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 213 leaves, 10 steps):

$$\frac{(\mathrm{i}\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{(\mathrm{i}\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{8\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}-\frac{2\,a\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 4595 leaves):

$$\frac{\mathrm{Cos}[c+d\,x]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\frac{8\,b}{3}-\frac{2}{3}\,a\,\mathrm{Cot}[c+d\,x]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}-$$

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-\frac{a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{2\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right.$$

$$\Bigg(\Bigg(i\, a \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\Bigg(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\,\mathbb{i}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}2\,\mathbb{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2\left(\left(a^2-b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\ 4\, i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\operatorname{Cot}[c+d x]}\ \sqrt{\operatorname{Sec}[c+d x]}\ \left(-\frac{i\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right)$$

- **Problem 849: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^{3/2}\,(a+b \operatorname{Tan}[c+d x])^{3/2}\,dx$$

Optimal (type 3, 185 leaves, 9 steps) :

$$\frac{i\,(i\,a-b)^{3/2} \operatorname{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\ \sqrt{\operatorname{Tan}[c+d x]}}{d}-$$

$$\frac{i\,(i\,a+b)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\ \sqrt{\operatorname{Tan}[c+d x]}}{d}-\frac{2\,a\sqrt{\operatorname{Cot}[c+d x]}\ \sqrt{a+b \operatorname{Tan}[c+d x]}}{d}$$

Result (type 4, 4519 leaves) :

$$-\frac{2\,a \operatorname{Cos}[c+d x]\sqrt{\operatorname{Cot}[c+d x]}\ (a+b \operatorname{Tan}[c+d x])^{3/2}}{d\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}+$$

$$\Bigg(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \mathrm{Cos}[c+d\,x]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{2\,a\,b\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{b^2\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Bigg)\middle/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right.\right.$$

$$\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\left(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]\right)\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2\left(2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{a\,b\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\Bigg)$$

- **Problem 850: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\sqrt{\mathrm{Cot}[c+d\,x]}\;(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 212 leaves, 13 steps):

$$-\frac{(\mathrm{i}\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{2\,b^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{(\mathrm{i}\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{d}$$

Result (type 4, 41 893 leaves): Display of huge result suppressed!

■ **Problem 851: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,dx$$

Optimal (type 3, 246 leaves, 14 steps):

$$-\frac{i\,(i\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{3\,a\,\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$
$$\frac{i\,(i\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 10413 leaves):

$$\frac{b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}+\left(2\,a\,\mathrm{Cos}[c+d\,x]\,\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$

$$\left(-b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{3\,a\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{2\,a^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,i\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left(\frac{a\,b\,\sqrt{\text{Cot}[c+d\,x]}\,\,\text{Sec}[c+d\,x]^{3/2}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,\text{Cos}[2\,(c+d\,x)]\,\sqrt{\text{Cot}[c+d\,x]}\,\,\text{Sec}[c+d\,x]^{3/2}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,\sqrt{\text{Cot}[c+d\,x]}\,\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[2\,(c+d\,x)]}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{b^2\,\sqrt{\text{Cot}[c+d\,x]}\,\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[2\,(c+d\,x)]}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\,\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right.$$

$$\left(\left(a^2\,\sqrt{\text{Cot}[c+d\,x]}\,\,\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,i\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right)\Big/$$

$$\left(2\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+$$

$$\left(a\sqrt{\mathrm{Cot}[c+d\,x]}\left(-b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{3\,a\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,i\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a^2+b^2}}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,a\,\text{Csc}[c+d\,x]^2\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\right.\right.$$

$$\left.\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,i\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}$$

$$a\sqrt{\text{Cot}[c+d\,x]}\ \left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\text{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\text{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\text{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\text{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\text{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\text{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\text{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\text{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,-$$

$$\frac{1}{\sqrt{a^2+b^2}\,\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}\,a\sqrt{\text{Cot}[c+d\,x]}\,\left(-b\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.$$

$$\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}\,-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}\,+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}\,+$$

$$\frac{4\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{2\,a^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{4\,\mathrm{i}\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b^2\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{3\,a\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(3\,a^2\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^3\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathbb{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathbb{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a^2\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^3\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(\mathrm{i}\,a^2\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)-$$

$$\left(a\,b^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)\right)+$$

$$\left(3\,a^2\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)\right)\right)$$

- **Problem 852: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{\mathrm{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 286 leaves, 15 steps):

$$\frac{(i\,a-b)^{3/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{\left(3\,a^2-8\,b^2\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{4\sqrt{b}\,d}+$$

$$\frac{(i\,a+b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{3\,a\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{4\,d\sqrt{\mathrm{Cot}[c+d\,x]}}+\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{2\,d\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 51 040 leaves): Display of huge result suppressed!

- **Problem 853: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{11/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 358 leaves, 13 steps):

$$\frac{(i a-b)^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{d}-\frac{(i a+b)^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{d}-$$

$$\frac{2\left(315 a^4-483 a^2 b^2-10 b^4\right) \sqrt{\operatorname{Cot}[c+d x]} \sqrt{a+b \operatorname{Tan}[c+d x]}}{315 a^2 d}+\frac{2 b\left(231 a^2-5 b^2\right) \operatorname{Cot}[c+d x]^{3/2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{315 a d}+$$

$$\frac{2\left(21 a^2-25 b^2\right) \operatorname{Cot}[c+d x]^{5/2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{105 d}-\frac{38 a b \operatorname{Cot}[c+d x]^{7/2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{63 d}-\frac{2 a^2 \operatorname{Cot}[c+d x]^{9/2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{9 d}$$

Result (type 4, 4747 leaves):

$$\left(\operatorname{Cos}[c+d x]^2 \sqrt{\operatorname{Cot}[c+d x]}\left(-\frac{2\left(413 a^4-558 a^2 b^2-10 b^4\right)}{315 a^2}+\frac{2\left(326 a^2 b \operatorname{Cos}[c+d x]-5 b^3 \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]}{315 a}+\right.\right.$$

$$\left.\left.\frac{2}{315}\left(133 a^2-75 b^2\right) \operatorname{Csc}[c+d x]^2-\frac{38}{63} a b \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^2-\frac{2}{9} a^2 \operatorname{Csc}[c+d x]^4\right)(a+b \operatorname{Tan}[c+d x])^{5/2}\right) \Big/$$

$$\left(d\left(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]\right)^2\right)+\left(4 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Cos}[c+d x]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]}\left(-i b\left(-3 a^2+b^2\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)^3 \operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{3 a^2 b \sqrt{\operatorname{Cot}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-\frac{b^3 \sqrt{\operatorname{Cot}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-\right.$$

$$\frac{a^3\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{3\,a\,b^2\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}(a+b\,\text{Tan}[c+d x])^{5/2}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right.$$

$$\Bigg(-\Bigg(\Bigg(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d x]}\;\Bigg(-i\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i\,b)^3\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\Bigg)-$$

$$\Bigg(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d x]}\;\Bigg(-i\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\,\mathrm{Csc}[c+d\,x]^2\left(-\mathrm{i}\,b\,\left(-3\,a^2+b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i b)^3 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 4 \text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \left(-i b\left(-3 a^2+b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^3 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (a-i b)^3$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \left(-i b\left(-3 a^2+b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^3$$

$$\left.\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{b\left(-3\,a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}\right)\right)$$

- **Problem 854: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{9/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 310 leaves, 12 steps) :

$$\frac{i\,(i\,a-b)^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{i\,(i\,a+b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{2\,b\,\left(49\,a^2-3\,b^2\right)\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{21\,a\,d}+\frac{2\,\left(7\,a^2-9\,b^2\right)\text{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{21\,d}-\frac{6\,a\,b\,\text{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{7\,d}-\frac{2\,a^2\,\text{Cot}[c+d\,x]^{7/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{7\,d}$$

Result (type 4, 4744 leaves) :

$$\left(\text{Cos}[c+d\,x]^2\,\sqrt{\text{Cot}[c+d\,x]}\left(\frac{2\,b\,\left(58\,a^2-3\,b^2\right)}{21\,a}+\frac{2}{21}\left(10\,a^2\,\text{Cos}[c+d\,x]-9\,b^2\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]-\frac{6}{7}\,a\,b\,\text{Csc}[c+d\,x]^2-\frac{2}{7}\,a^2\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(i\,a\,\left(a^2-3\,b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a-b)^3\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$i\,(a-i\,b)^3\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\Bigg(\frac{a^3\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{3\,a^2\,b\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^3\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$

$$\Bigg(-\Bigg(\Bigg(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(i\,a\left(a^2-3\,b^2\right)\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(i\,a-b)^3\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$i\,(a-i\,b)^3\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left.\left.\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right]-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(\mathbb{i}\,a-b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.\mathbb{i}\,(a-\mathbb{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathbb{i}\, a-b)^3 \,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\mathbb{i}\,(a-\mathbb{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\, 2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathbb{i}\, a-b)^3 \,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathbb{i}\,(a-\mathbb{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\, 2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d\,x]^2\left(\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\mathrm{i}\,(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{i}\,(a-\mathrm{i}\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathbb{i}\,a-b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathbb{i}\,(a-\mathbb{i}\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{a\,\left(a^2-3\,b^2\right)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathbb{i}\,(\mathbb{i}\,a-b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathbb{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{(a-\mathrm{i}\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 855: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{7/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 259 leaves, 11 steps):

$$-\frac{(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$
$$\frac{2\left(15\,a^2-23\,b^2\right)\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,d}-\frac{22\,a\,b\,\mathrm{Cot}[c+d\,x]^{3/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,d}-\frac{2\,a^2\,\mathrm{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d}$$

Result (type 4, 4666 leaves):

$$\left(\mathrm{Cos}[c+d\,x]^2\sqrt{\mathrm{Cot}[c+d\,x]}\left(\frac{2}{15}\left(18\,a^2-23\,b^2\right)-\frac{22}{15}\,a\,b\,\mathrm{Cot}[c+d\,x]-\frac{2}{5}\,a^2\,\mathrm{Csc}[c+d\,x]^2\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)\Big/$$
$$\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right)+\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$
$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-\frac{3\,a^2\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$
$$\left.\frac{a^3\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}(a+b\,\text{Tan}[c+d\,x])^{5/2}\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$

$$\left(-\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left.\left.\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(i\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+i\,b)^3\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^3\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(i\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d\,x]^2\left(i\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^3\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^3\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(i\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^3\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\left(-3\,a^2+b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{\mathrm{Sec}[c+d\,x]}\left(\frac{b\left(-3\,a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a-i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 856: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 222 leaves, 10 steps) :

$$-\frac{i\,(i\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{i\,(i\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{14\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}-\frac{2\,a^2\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 4666 leaves) :

$$\frac{\mathrm{Cos}[c+d\,x]^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\frac{14\,a\,b}{3}-\frac{2}{3}\,a^2\,\mathrm{Cot}[c+d\,x]\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-i\,a\,(a^2-3\,b^2)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(a+i\,b)^3\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(\mathrm{i}\, a+b)^3\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-\frac{a^3\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{3\,a^2\,b\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$

$$\left(-\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\left(a^2-3\,b^2\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(\mathrm{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(\mathrm{i}\,a+b)^3\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\left(a^2-3\,b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathbb{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(\mathbb{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(\mathbb{i}\,a+b)^3\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(\mathbb{i}\,a+b)^3$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\ 2\,\mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \left(-\mathbb{i}\,a\,\left(a^2-3\,b^2\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\ (a+\mathbb{i}\,b)^3\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(\mathbb{i}\,a+b)^3$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\ 4\,\mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \left(-\frac{a\,\left(a^2-3\,b^2\right)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{(a+\mathbb{i}\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\,\left(1-\mathbb{i}\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(\mathrm{i}\,a+b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 857: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 243 leaves, 14 steps):

$$\frac{(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{2\,b^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$
$$\frac{(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{2\,a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d}$$

Result (type 4, 51370 leaves): Display of huge result suppressed!

- **Problem 858: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,dx$$

Optimal (type 3, 248 leaves, 14 steps):

$$\frac{\mathrm{i}\,(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{5\,a\,b^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$
$$\frac{\mathrm{i}\,(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{b^2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 56089 leaves): Display of huge result suppressed!

- **Problem 859: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,dx$$

Optimal (type 3, 291 leaves, 15 steps):

$$-\frac{(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{\sqrt{b}\,\left(15\,a^2-8\,b^2\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{4\,d}+$$

$$\frac{(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{b^2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{2\,d\,\mathrm{Cot}[c+d\,x]^{3/2}}+\frac{9\,a\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{4\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 60 072 leaves) : Display of huge result suppressed !

- **Problem 860: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{\mathrm{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 337 leaves, 16 steps) :

$$-\frac{\mathrm{i}\,(\mathrm{i}\,a-b)^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{5\,a\,\left(a^2-8\,b^2\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{8\,\sqrt{b}\,d}-\frac{\mathrm{i}\,(\mathrm{i}\,a+b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{b^2\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d\,\mathrm{Cot}[c+d\,x]^{5/2}}+\frac{13\,a\,b\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{12\,d\,\mathrm{Cot}[c+d\,x]^{3/2}}+\frac{\left(11\,a^2-8\,b^2\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{8\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 64 812 leaves) : Display of huge result suppressed !

- **Problem 861: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^{5/2}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 220 leaves, 11 steps) :

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a-b}\,d}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a+b}\,d}+$$

$$\frac{4\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a^2\,d}-\frac{2\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a\,d}$$

Result (type 4, 490 leaves) :

$$\frac{\sqrt{\text{Cot}[c+d\,x]}\,\left(\frac{4\,b}{3\,a^2}-\frac{2\,\text{Cot}[c+d\,x]}{3\,a}\right)\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

- **Problem 862: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 187 leaves, 10 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\;d}+$$

$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\;d}-\frac{2\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{a\,d}$$

Result (type 4, 2695 leaves):

$$-\frac{2\,\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$

$$\left(2\,\left(\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(d\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right.$$

$$\Bigg(-\Bigg(a\sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\Bigg)\Bigg/$$

$$\left(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)+$$

$$\Bigg(\sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\right)-$$

$$\Bigg(2\sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)+$$

$$\left(\text{Csc}[c+d\,x]\left(\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)-\left(a\left(b+\sqrt{a^2+b^2}\right)\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\right.\right.$$

$$\left.\left.\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\ \sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(2\left(\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}\right)^{3/2}\left(a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)-$$

$$\left(\sqrt{\text{Cot}[c+d\,x]}\left(\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\ \text{Sec}[c+d\,x]^{3/2}$$

$$\left.\text{Sin}[c+d\,x]^2\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)-$$

$$\left(2\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\ \left(\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\left(b+\sqrt{a^2+b^2}\right)\right.\right.\right.$$

$$\left.\left(1-i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/$$

$$\left.\left.\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\right)\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 863: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 149 leaves, 8 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\ d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\ d}$$

Result (type 4, 430 leaves):

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

- **Problem 864: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 155 leaves, 8 steps):

$$\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a-b}\,d}-\frac{\mathrm{i}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a+b}\,d}$$

Result (type 4, 2640 leaves):

$$\left(2\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(d\,\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right.$$

$$\Bigg(\Bigg(a\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\Bigg)\Big/$$

$$\Bigg(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)-$$

$$\Bigg(\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Big/\Bigg(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\Bigg)+$$

$$\Bigg(2\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)-$$

$$\left(\mathrm{Csc}[c+d\,x]\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right)+\left(a\left(b+\sqrt{a^2+b^2}\right)\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$

$$\mathrm{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\right.\right.$$

$$\left.\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}[c+d\,x]\ \sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(2\left(\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}\right)^{3/2}\left(a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)^2\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right)+$$

$$\left(\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}$$

$$\left.\mathrm{Sin}[c+d\,x]^2\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Big/\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right)+$$

$$\left(2\sqrt{\operatorname{Cot}[c+d x]}\,\sqrt{\operatorname{Sec}[c+d x]}\,\operatorname{Sin}[c+d x]\sqrt{1+\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\left(\left(\mathrm{i}\,a\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4\left(b+\sqrt{a^2+b^2}\right)\right.\right.\right.$$

$$\left(1-\mathrm{i}\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left.\right)-\left(\mathrm{i}\,a\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/$$

$$\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{i}\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)\left.\right)\left.\right)\Big/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}\right)\left.\right)\sqrt{a+b\operatorname{Tan}[c+d x]}\left.\right)$$

- **Problem 865: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\operatorname{Cot}[c+d x]^{3/2}\sqrt{a+b\operatorname{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 212 leaves, 13 steps):

$$-\frac{\operatorname{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b\operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{\mathrm{i}\,a-b}\,d}+$$

$$\frac{2\operatorname{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b\operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{b}\,d}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b\operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{\mathrm{i}\,a+b}\,d}$$

Result (type 4, 5276 leaves):

$$-\left(\left(4\,a\sqrt{\operatorname{Cot}[c+d x]}\right.\right.$$

$$\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-\right.$$

$$\left.\frac{\mathrm{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\left(\frac{\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{\text{Cos}[2\,(c+d\,x)]\,\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\ d\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right.$$

$$\left(-\left(\left(a^2\sqrt{\text{Cot}[c+d\,x]}\ \left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\mathrm{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg)-$$

$$\left(2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\;2\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\mathrm{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}-\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\mathbb{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\,\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,4\,a\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+i\,\left(b+\sqrt{a^2+b^2}\right)\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(i\,a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)-\left(a\,\mathrm{Sec}\left[\frac{1}{2}\right.\right.$$

$$\left.\left.(c+d\,x)\right]^2\right)\Big/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Bigg)$$

- **Problem 866: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 248 leaves, 14 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\,d}-\frac{a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{b^{3/2}\,d}+$$

$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\,d}+\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b\,d\,\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 4, 6016 leaves):

$$\frac{\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{b\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\left(2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\left(-\frac{a\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^{3/2}}{2\,b\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[2\,(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(b\sqrt{a^2+b^2}\;d\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)\left(\left(a^2\sqrt{\text{Cot}[c+d\,x]}\right.\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(2\,b\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+\left(a\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(b\sqrt{a^2+b^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a^2+b^2}}\right)-$$

$$\frac{1}{b\sqrt{a^2+b^2}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a^2+b^2}}}\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{b\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,a\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;-\;\frac{1}{b\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}\,a\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(-\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]-\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{b\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\left(a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+$$

$$\left(a^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 867: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^{5/2}}{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 281 leaves, 11 steps):

$$-\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{3/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{3/2}\,d}+$$

$$\frac{2 b^2\left(5 a^2+8 b^2\right)}{3 a^3\left(a^2+b^2\right) d\,\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}+\frac{8 b\,\sqrt{\text{Cot}[c+d x]}}{3 a^2 d\,\sqrt{a+b\,\text{Tan}[c+d x]}}-\frac{2\,\text{Cot}[c+d x]^{3/2}}{3 a d\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4623 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d x])^{3/2}}$$

$$\sqrt{\text{Cot}[c+d x]}\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(\frac{10 b}{3 a^3}-\frac{2\,\text{Cot}[c+d x]}{3 a^2}+\frac{2 b^4\,\text{Sin}[c+d x]}{a^3\,(a-i b)\,(a+i b)\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d x]}\left(-i a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.i\,(a+i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])$$

$$\left(-\frac{a\,\sqrt{\text{Cot}[c+d x]}}{(a-i b)\,(a+i b)\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{b\,\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-i b)\,(a+i b)\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\right.$$

$$\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\operatorname{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\operatorname{Cot}[c+dx]}\left(-i\,a\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(i\,a+b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.i\,(a+i\,b)\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\operatorname{Sec}[c+dx]}\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\operatorname{Cos}[c+dx]+b\operatorname{Sin}[c+dx]}\,\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\operatorname{Cot}[c+dx]}\left(-i\,a\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(i\,a+b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$i\,(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.i\,(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+i\,(a+i\,b)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+i\,(a+i\,b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\ 4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-\right.$$

$$\frac{i\,(i\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\frac{(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)\ \left(a+b\,\text{Tan}[c+d x]\right)^{3/2}\Bigg)$$

- **Problem 868: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d x]^{3/2}}{\left(a+b\,\text{Tan}[c+d x]\right)^{3/2}}\,dx$$

Optimal (type 3, 233 leaves, 10 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{3/2} d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{3/2} d}-$$

$$\frac{2 b\left(a^2+2 b^2\right)}{a^2\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}-\frac{2\sqrt{\text{Cot}[c+d x]}}{a d\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4592 leaves) :

$$\frac{\sqrt{\text{Cot}[c+d x]}\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(-\frac{2}{a^2}-\frac{2 b^3\,\text{Sin}[c+d x]}{a^2 (a-i b)(a+i b)(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)}{d\,(a+b\,\text{Tan}[c+d x])^{3/2}}-$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d x]}\left(i\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])$$

$$\left(-\frac{b\sqrt{\text{Cot}[c+d x]}}{(a-i b)(a+i b)\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{a\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-i b)(a+i b)\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)$$

$$\left.\left.\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right) \Bigg/ \left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\right.$$

$$\left(\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\operatorname{Cot}[c+d x]}\left(i\, b \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(a-i b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i b)\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\operatorname{Sec}[c+d x]}\right) \Bigg/$$

$$\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\operatorname{Cot}[c+d x]}\left(i\, b\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-i b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\left(i\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i\,b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d\,x]^2\left(i\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i\,b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathbb{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathbb{i}\,b)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]^{3/2}\ \text{Sin}[c+d\,x]\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}\right)$$

- **Problem 869: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+d\,x]}}{\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 199 leaves, 9 steps):

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}+$$

$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}+\frac{2\,b^2}{a\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4569 leaves) :

$$\frac{2\,b^2\,\text{Sec}[c+d\,x]\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a\,(a-i\,b)\,(a+i\,b)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}}-$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(-i\,a\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.i\,(a+i\,b)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^2\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)$$

$$\left(\frac{a\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)\,(a+i\,b)\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\Bigg/\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d$$

$$\Bigg(\Bigg(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\Bigg(-\mathrm{i}\,a\,\mathrm{EllipticF}\Bigg[\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\Bigg[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\Bigg[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\Bigg(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\Bigg)+$$

$$\Bigg(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\Bigg(-\mathrm{i}\,a\,\mathrm{EllipticF}\Bigg[\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\Bigg[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\mathrm{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$\left.\left.\mathbb{i}\,(a+\mathbb{i}\,b)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathbb{i}\,a\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathbb{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathbb{i}\,(a+\mathbb{i}\,b)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2\left(-\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)$$

$$\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\text{i}\,(\text{i}\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\text{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{(a+\text{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+\text{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}\right)$$

- **Problem 870: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{\text{Cot}[c+d\,x]}\,\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 189 leaves, 9 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{3/2} d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{3/2} d}-\frac{2 b}{\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}\sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 4551 leaves) :

$$-\frac{2 b \text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}{(a-i b)(a+i b) d\sqrt{\text{Cot}[c+d x]}(a+b \text{Tan}[c+d x])^{3/2}}+$$

$$\left(4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\right.$$

$$\left(i b \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i b) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])$$

$$\left(\frac{b\sqrt{\text{Cot}[c+d x]}}{(a-i b)(a+i b)\sqrt{\text{Sec}[c+d x]}\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{a\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)(a+i b)\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)$$

$$\left.\left.\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right/\left((a^2+b^2)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right.$$

$$\left(-\left(a\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.\left.(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\right/$$

$$\left((a^2+b^2)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\left(a\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathrm{i}\, b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Bigg/$$

$$\left((a^2+b^2)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(\mathrm{i}\, b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\, b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\, b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}-$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \left(i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i\, b)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\, b)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left. i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ (b\, \text{Cos}[c+d x]-a\, \text{Sin}[c+d x])\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}\ 2\, \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Csc}[c+d x]^2 \left(i\, b\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-i\, b)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\, b)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a-\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\sqrt{\text{Sec}[c+d\,x]}\left(\frac{b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\left(a+b\,\text{Tan}[c+d\,x]\right)^{3/2}\right)$$

- **Problem 871: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 194 leaves, 9 steps) :

$$-\frac{i\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}+\frac{2\,a}{\left(a^2+b^2\right)d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4566 leaves) :

$$\frac{2\,a\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{(a-i\,b)\,(a+i\,b)\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+$$

$$\Bigg(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}$$

$$\Bigg(-i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$i\,(a+i\,b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\left(-\frac{a\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-i\,b)\,(a+i\,b)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\left.\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\right.$$

$$\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\operatorname{Cot}[c+d x]}\left(-i\,a\,\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(i a+b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.i(a+i b)\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\operatorname{Sec}[c+d x]}\right)\Big/$$

$$\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\operatorname{Cot}[c+d x]}\left(-i\,a\,\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(i a+b)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,a\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{i}\,(a+\mathrm{i}\,b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\left(-i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+i\,(a+i\,b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d\,x]^2\left(-i\,a\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(i\,a+b)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.i\,(a+i\,b)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-\mathrm{i}\,a\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\mathrm{i}\,(a+\mathrm{i}\,b)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]}\left(-\frac{a\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-\right.$$

$$\frac{i\,(i\,a+b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\frac{(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)\left(a+b\,\text{Tan}[c+d x]\right)^{3/2}\Bigg)$$

- **Problem 872: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d x]^{5/2}\left(a+b\,\text{Tan}[c+d x]\right)^{3/2}}\,dx$$

Optimal (type 3, 255 leaves, 14 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{3/2} d}+\frac{2\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{b^{3/2} d}-$$
$$\frac{\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{3/2} d}-\frac{2 a^2}{b\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 42 289 leaves) : Display of huge result suppressed!

- **Problem 873: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d x]^{7/2}\,(a+b\,\text{Tan}[c+d x])^{3/2}}\,dx$$

Optimal (type 3, 310 leaves, 15 steps) :

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{3/2} d}-\frac{3 a\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{b^{5/2} d}+$$
$$\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{3/2} d}-\frac{2 a^2}{b\left(a^2+b^2\right) d\,\text{Cot}[c+d x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d x]}}+\frac{\left(3 a^2+b^2\right)\sqrt{a+b\,\text{Tan}[c+d x]}}{b^2\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}}$$

Result (type 4, 47 128 leaves) : Display of huge result suppressed!

- **Problem 874: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d x]^{5/2}}{(a+b\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 338 leaves, 12 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{5/2} d}+$$
$$\frac{\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{5/2} d}+\frac{2 b^2\left(7 a^2+8 b^2\right)}{3 a^3\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}\,(a+b\,\text{Tan}[c+d x])^{3/2}}+$$
$$\frac{4 b\sqrt{\text{Cot}[c+d x]}}{a^2 d\,(a+b\,\text{Tan}[c+d x])^{3/2}}-\frac{2\,\text{Cot}[c+d x]^{3/2}}{3 a d\,(a+b\,\text{Tan}[c+d x])^{3/2}}+\frac{4 b^2\left(4 a^4+15 a^2 b^2+8 b^4\right)}{3 a^4\left(a^2+b^2\right)^2 d\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4884 leaves) :

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\sqrt{\mathrm{Cot}[c+d\,x]}\;\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(\frac{2\,b\,\left(8\,a^4+16\,a^2\,b^2+9\,b^4\right)}{3\,a^4\,\left(a^2+b^2\right)^2}-\frac{2\,\mathrm{Cot}[c+d\,x]}{3\,a^3}-\right.$$
$$\left.\frac{2\,b^5}{3\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{2\,\left(15\,a^2\,b^4\,\mathrm{Sin}[c+d\,x]+7\,b^6\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)-$$
$$\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$
$$\left(\left(a^2-b^2\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$
$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$
$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$
$$\left(-\frac{a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$
$$\left.\left.\frac{2\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right.$$

$$\left(\left(i\, a \sqrt{\frac{b-\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]} \left(\left(a^2-b^2\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-i b)^2 \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i b)^2 \operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(i\, a \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]} \left(\left(a^2-b^2\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i b)^2 \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i b)^2 \operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left((a^2+b^2)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\,\mathrm{i}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a^2-b^2)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left((a^2-b^2)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}+\Bigg(2\,\mathbb{i}\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2\,\Bigg(\left(a^2-b^2\right)\,\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg)\Big/$$

$$\Bigg(\left(a^2+b^2\right)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)+\frac{1}{\left(a^2+b^2\right)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]}\left(-\frac{i\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)\,(a+b\,\text{Tan}[c+d x])^{5/2}\Bigg)$$

- **Problem 875: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d x]^{3/2}}{(a+b\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 305 leaves, 11 steps) :

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}-$$

$$\frac{2\,b\,\left(3\,a^2+4\,b^2\right)}{3\,a^2\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,\sqrt{\text{Cot}[c+d\,x]}}{a\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\,\left(3\,a^4+17\,a^2\,b^2+8\,b^4\right)}{3\,a^3\,\left(a^2+b^2\right)^2\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4817 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\,\left(3\,a^4+6\,a^2\,b^2+4\,b^4\right)}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,b^4}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{8\,\left(3\,a^2\,b^3\,\text{Sin}[c+d\,x]+b^5\,\text{Sin}[c+d\,x]\right)}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(-\frac{2\,a\,b\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{a^2 \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{b^2 \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}\right) \Big/$$

$$\left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d \left(-\left(a \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(-2 i a b\, \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^2 \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i b)^2 \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Big/$$

$$\left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)-$$

$$\left(a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(-2 i a b\, \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)^2 \,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i \,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Big/$$

$$\Bigg(\left(a^2+b^2\right)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]}\Bigg)+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\Bigg(-2\, i\, a\, b\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-i b)^2\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a+i b)^2\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}\Big[\frac{1}{2}(c+d x)\Big]}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Csc}[c+d\,x]^2\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)-\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{a\,b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 876: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+d\,x]}}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 252 leaves, 10 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}-\frac{\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}+\frac{2\,b^2}{3\,a\,(a^2+b^2)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{4\,b^2\,(4\,a^2+b^2)}{3\,a^2\,(a^2+b^2)^2\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4859 leaves):

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(\frac{2\,b^3}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,b^3}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{2\,(9\,a^2\,b^2\,\text{Sin}[c+d\,x]+b^4\,\text{Sin}[c+d\,x])}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)+$$

$$\left(4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a^2-b^2)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$

$$\left(\frac{a^2\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^2\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left(\frac{2\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\right.$$

$$\left(-\left(\mathbb{i}\,a\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a^2-b^2)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-\mathbb{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathbb{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\left(\mathbb{i}\,a\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a^2-b^2)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathbb{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\left(a^2+b^2\right)^2 \left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 3 i \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}-$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{3/2}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\Bigg(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-\Bigg(2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2\,\Bigg(\left(a^2-b^2\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\right)-\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}$$

$$4 \mathrm{i} \text{Cos}\left[\frac{1}{2} (c+d x)\right] \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \left(\left(a^2-b^2\right) \text{EllipticF}\left[\mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i} b)^2 \text{EllipticPi}\left[-\frac{\mathrm{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i} b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2} (c+d x)\right] \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 2 \mathrm{i} \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(\left(a^2-b^2\right) \text{EllipticF}\left[\mathrm{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathrm{i}\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 877: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 251 leaves, 10 steps):

$$-\frac{\mathrm{i}\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a-b)^{5/2}\,d}+\frac{\mathrm{i}\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a+b)^{5/2}\,d}-\frac{2\,b}{3\,(a^2+b^2)\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\,(5\,a^2-b^2)}{3\,a\,(a^2+b^2)^2\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4796 leaves):

$$\frac{1}{d\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\sqrt{\mathrm{Cot}[c+d\,x]}\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\,b^2}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{2\,a\,b^2}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\frac{4\,\left(3\,a^2\,b\,\mathrm{Sin}[c+d\,x]-b^3\,\mathrm{Sin}[c+d\,x]\right)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)-$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(\frac{2\,a\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{b^2\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\right.$$

$$\left(\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathbb{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left((a^2+b^2)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Csc}[c+d\,x]^2\left(-2\,\mathrm{i}\,a\,b\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\right)+\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}$$

$$4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left(-2\,\mathbb{i}\,a\,b\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(\left(-\frac{a\,b\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 878: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 239 leaves, 10 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a-b)^{5/2} d}+\frac{\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(i a+b)^{5/2} d}+$$
$$\frac{2 a}{3\left(a^2+b^2\right) d\sqrt{\text{Cot}[c+d x]}\,(a+b\,\text{Tan}[c+d x])^{3/2}}+\frac{4\left(a^2-2 b^2\right)}{3\left(a^2+b^2\right)^2 d\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 4850 leaves):

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d x])^{5/2}}\sqrt{\text{Cot}[c+d x]}\,\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3$$
$$\left(\frac{2 b}{3 (a-i b)^2 (a+i b)^2}-\frac{2 a^2 b}{3 (a-i b)^2 (a+i b)^2 (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\frac{2\left(3 a^2\,\text{Sin}[c+d x]-5 b^2\,\text{Sin}[c+d x]\right)}{3 (a-i b)^2 (a+i b)^2 (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)-$$
$$\left(4 i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{\text{Cot}[c+d x]}\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$
$$(a-i b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$
$$\left.(a+i b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$
$$\left(-\frac{a^2\sqrt{\text{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{b^2\sqrt{\text{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\right.$$

$$\left.\left.\frac{2\,a\,b\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\right.$$

$$\left(\left(\mathrm{i}\,a\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left((a^2-b^2)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\left(\mathrm{i}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left((a^2-b^2)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left((a^2+b^2)^2 \left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) -$$

$$\frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 3 i \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \Bigg((a^2-b^2) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2 \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} +$$

$$\frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{3/2}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+\left(2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left(\left(a^2-b^2\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d\,x]} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)+\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right] \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right] \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d\,x]} \left(\left(a^2-b^2\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathrm{i}\left(a^2-b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 879: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 254 leaves, 10 steps) :

$$\frac{i\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}-\frac{2\,a^2}{3\,b\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,a\,\left(a^2+7\,b^2\right)}{3\,b\,\left(a^2+b^2\right)^2\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4773 leaves) :

$$\frac{1}{d\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\,a}{3\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,a^3}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\frac{16\,a\,b\,\text{Sin}[c+d\,x]}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)^2\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(-\frac{2\,a\,b\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{a^2\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{b^2\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\right)\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d x]}\left(-2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d x]}\left(-2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left((a^2+b^2)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-2\,\mathrm{i}\,a\,b\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d x]}\;\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d x]}$$

$$(b\,\mathrm{Cos}[c+d x]-a\,\mathrm{Sin}[c+d x])\;\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d x]^2\left(-2\,i\,a\,b\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)^2\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d x]}\;\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/$$

$$\left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d\,x]} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right) - \frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right] \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]} \left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a-i\,b)^2\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (a+i\,b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right] \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2} +$$

$$\frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\, 2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d\,x]} \left(-2\,i\,a\,b\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a-i b)^2 \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)^2$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]}\left(-\frac{a b \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2 \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i(a-i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\frac{i(a+i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)(a+b \text{Tan}[c+d x])^{5/2}\right)$$

- **Problem 880: Result more than twice size of optimal antiderivative.**

$$\int (d \text{Cot}[e+f x])^n (a+b \text{Tan}[e+f x])^3 \, dx$$

Optimal (type 5, 206 leaves, 8 steps):

$$\frac{a^2 b d^2 (1-2n) (d \operatorname{Cot}[e+f x])^{-2+n}}{f (1-n) (2-n)}+\frac{a^2 d^2 (d \operatorname{Cot}[e+f x])^{-2+n} (b+a \operatorname{Cot}[e+f x])}{f (1-n)}-\frac{b \left(3 a^2-b^2\right) d^2 (d \operatorname{Cot}[e+f x])^{-2+n} \operatorname{Hypergeometric2F1}\left[1, \frac{1}{2}(-2+n), \frac{n}{2}, -\operatorname{Cot}[e+f x]^2\right]}{f (2-n)}-\frac{a \left(a^2-3 b^2\right) d (d \operatorname{Cot}[e+f x])^{-1+n} \operatorname{Hypergeometric2F1}\left[1, \frac{1}{2}(-1+n), \frac{1+n}{2}, -\operatorname{Cot}[e+f x]^2\right]}{f (1-n)}$$

Result (type 5, 449 leaves):

$$-\left(3 a^2 b \operatorname{Cos}[e+f x]^3 (d \operatorname{Cot}[e+f x])^n \operatorname{Hypergeometric2F1}\left[\frac{n}{2}, \frac{n}{2}, \frac{2+n}{2}, \operatorname{Cos}[e+f x]^2\right] \left(\operatorname{Sin}[e+f x]^2\right)^{1+\frac{1}{2}(-2+n)} (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f n (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right)-$$
$$\left(b^3 \operatorname{Cos}[e+f x] (d \operatorname{Cot}[e+f x])^n \operatorname{Hypergeometric2F1}\left[\frac{1}{2}(-2+n), \frac{1}{2}(-2+n), \frac{n}{2}, \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x]^4 \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-4+n)} (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f (-2+n) (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right)-$$
$$\left(3 a b^2 \operatorname{Cos}[e+f x]^2 (d \operatorname{Cot}[e+f x])^n \operatorname{Hypergeometric2F1}\left[\frac{1}{2}(-1+n), \frac{1}{2}(-1+n), \frac{1+n}{2}, \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x]^3 \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-3+n)} (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f (-1+n) (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right)-$$
$$\left(a^3 \operatorname{Cos}[e+f x]^4 (d \operatorname{Cot}[e+f x])^n \operatorname{Hypergeometric2F1}\left[\frac{1+n}{2}, \frac{1+n}{2}, \frac{3+n}{2}, \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x] \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-1+n)} (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f (1+n) (a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right)$$

Problem 885: Unable to integrate problem.

$$\int (d \operatorname{Cot}[e+f x])^n (a+b \operatorname{Tan}[e+f x])^m \, dx$$

Optimal (type 6, 193 leaves, 8 steps):

$$\frac{1}{2 f (1-n)} \operatorname{AppellF1}\left[1-n, -m, 1, 2-n, -\frac{b \operatorname{Tan}[e+f x]}{a}, -i \operatorname{Tan}[e+f x]\right] (d \operatorname{Cot}[e+f x])^n \operatorname{Tan}[e+f x] (a+b \operatorname{Tan}[e+f x])^m \left(1+\frac{b \operatorname{Tan}[e+f x]}{a}\right)^{-m}+\frac{1}{2 f (1-n)} \operatorname{AppellF1}\left[1-n, -m, 1, 2-n, -\frac{b \operatorname{Tan}[e+f x]}{a}, i \operatorname{Tan}[e+f x]\right] (d \operatorname{Cot}[e+f x])^n \operatorname{Tan}[e+f x] (a+b \operatorname{Tan}[e+f x])^m \left(1+\frac{b \operatorname{Tan}[e+f x]}{a}\right)^{-m}$$

Result (type 8, 25 leaves):

$$\int (d \operatorname{Cot}[e+f x])^n (a+b \operatorname{Tan}[e+f x])^m \, dx$$

Problem 886: Unable to integrate problem.

$$\int \text{Cot}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])^n \, dx$$

Optimal (type 6, 155 leaves, 10 steps):

$$-\frac{1}{d}\text{AppellF1}\left[-\frac{1}{2}, 1, -n, \frac{1}{2}, -i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \sqrt{\text{Cot}[c+d x]} (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n} - \frac{1}{d}\text{AppellF1}\left[-\frac{1}{2}, 1, -n, \frac{1}{2}, i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] \sqrt{\text{Cot}[c+d x]} (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}$$

Result (type 8, 25 leaves):

$$\int \text{Cot}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])^n \, dx$$

Problem 887: Unable to integrate problem.

$$\int \sqrt{\text{Cot}[c+d x]} (a+b \text{Tan}[c+d x])^n \, dx$$

Optimal (type 6, 153 leaves, 10 steps):

$$\frac{\text{AppellF1}\left[\frac{1}{2}, 1, -n, \frac{3}{2}, -i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}}{d \sqrt{\text{Cot}[c+d x]}} + \frac{\text{AppellF1}\left[\frac{1}{2}, 1, -n, \frac{3}{2}, i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}}{d \sqrt{\text{Cot}[c+d x]}}$$

Result (type 8, 25 leaves):

$$\int \sqrt{\text{Cot}[c+d x]} (a+b \text{Tan}[c+d x])^n \, dx$$

Problem 888: Unable to integrate problem.

$$\int \frac{(a+b \text{Tan}[c+d x])^n}{\sqrt{\text{Cot}[c+d x]}} \, dx$$

Optimal (type 6, 159 leaves, 10 steps):

$$\frac{\text{AppellF1}\left[\frac{3}{2}, 1, -n, \frac{5}{2}, -i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}}{3 d \text{Cot}[c+d x]^{3/2}} + \frac{\text{AppellF1}\left[\frac{3}{2}, 1, -n, \frac{5}{2}, i \text{Tan}[c+d x], -\frac{b \text{Tan}[c+d x]}{a}\right] (a+b \text{Tan}[c+d x])^n \left(1+\frac{b \text{Tan}[c+d x]}{a}\right)^{-n}}{3 d \text{Cot}[c+d x]^{3/2}}$$

Result (type 8, 25 leaves):

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^n}{\sqrt{\text{Cot}[c+d\,x]}}\,dx$$

Problem 889: Unable to integrate problem.

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^n}{\text{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 6, 159 leaves, 10 steps):

$$\frac{\text{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},-i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\,(a+b\,\text{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}}{5\,d\,\text{Cot}[c+d\,x]^{5/2}}+\frac{\text{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},i\,\text{Tan}[c+d\,x],-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\,(a+b\,\text{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\text{Tan}[c+d\,x]}{a}\right)^{-n}}{5\,d\,\text{Cot}[c+d\,x]^{5/2}}$$

Result (type 8, 25 leaves):

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^n}{\text{Cot}[c+d\,x]^{3/2}}\,dx$$

Problem 890: Result more than twice size of optimal antiderivative.

$$\int (a+i\,a\,\text{Tan}[e+f\,x])^3\,(c-i\,c\,\text{Tan}[e+f\,x])\,dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{i\,c\,(a+i\,a\,\text{Tan}[e+f\,x])^3}{3\,f}$$

Result (type 3, 62 leaves):

$$\frac{i\,a^3\,c\,\text{Sec}[e+f\,x]^2}{f}+\frac{4\,a^3\,c\,\text{Tan}[e+f\,x]}{3\,f}-\frac{a^3\,c\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,f}$$

Problem 895: Result more than twice size of optimal antiderivative.

$$\int \frac{c-i\,c\,\text{Tan}[e+f\,x]}{(a+i\,a\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$\frac{i\,c}{3\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^3}$$

Result (type 3, 56 leaves):

$$\frac{c\,(3+4\,\text{Cos}[2\,(e+f\,x)]+2\,i\,\text{Sin}[2\,(e+f\,x)])\,(i\,\text{Cos}[4\,(e+f\,x)]+\text{Sin}[4\,(e+f\,x)])}{24\,a^3\,f}$$

Problem 908: Result more than twice size of optimal antiderivative.

$$\int (a + i a \operatorname{Tan}[e + f x]) (c - i c \operatorname{Tan}[e + f x])^3 \, dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$\frac{i a (c - i c \operatorname{Tan}[e + f x])^3}{3 f}$$

Result (type 3, 62 leaves):

$$-\frac{i a c^3 \operatorname{Sec}[e + f x]^2}{f} + \frac{4 a c^3 \operatorname{Tan}[e + f x]}{3 f} - \frac{a c^3 \operatorname{Sec}[e + f x]^2 \operatorname{Tan}[e + f x]}{3 f}$$

Problem 909: Result more than twice size of optimal antiderivative.

$$\int \frac{(c - i c \operatorname{Tan}[e + f x])^3}{a + i a \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 71 leaves, 4 steps):

$$-\frac{4 c^3 x}{a} - \frac{4 i c^3 \operatorname{Log}[\operatorname{Cos}[e + f x]]}{a f} + \frac{c^3 \operatorname{Tan}[e + f x]}{a f} + \frac{4 i c^3}{f (a + i a \operatorname{Tan}[e + f x])}$$

Result (type 3, 234 leaves):

$$\frac{1}{2 a f \left(\operatorname{Cos}\left[\frac{e}{2}\right] - \operatorname{Sin}\left[\frac{e}{2}\right]\right) \left(\operatorname{Cos}\left[\frac{e}{2}\right] + \operatorname{Sin}\left[\frac{e}{2}\right]\right) (-i + \operatorname{Tan}[e + f x])}$$
$$i c^3 \operatorname{Sec}[e + f x]^2 \left(-i \operatorname{Cos}[3 e + 2 f x] + i \operatorname{Cos}[e + 2 f x] \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] + i \operatorname{Cos}[3 e + 2 f x] \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] + \right.$$
$$i \operatorname{Cos}[e] \left(-3 + 2 \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right]\right) + \operatorname{Sin}[e] + 8 \operatorname{ArcTan}[\operatorname{Tan}[f x]] \operatorname{Cos}[e] \operatorname{Cos}[e + f x] (\operatorname{Cos}[e + f x] + i \operatorname{Sin}[e + f x]) -$$
$$\left. 2 \operatorname{Sin}[e + 2 f x] - \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] \operatorname{Sin}[e + 2 f x] - \operatorname{Sin}[3 e + 2 f x] - \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] \operatorname{Sin}[3 e + 2 f x]\right)$$

Problem 918: Result more than twice size of optimal antiderivative.

$$\int (a + i a \operatorname{Tan}[e + f x]) (c - i c \operatorname{Tan}[e + f x])^4 \, dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$\frac{i a (c - i c \operatorname{Tan}[e + f x])^4}{4 f}$$

Result (type 3, 85 leaves):

$$\frac{1}{4 f} a c^4 \operatorname{Sec}[e] \operatorname{Sec}[e + f x]^4 (-3 i \operatorname{Cos}[e] - 2 i \operatorname{Cos}[e + 2 f x] - 2 i \operatorname{Cos}[3 e + 2 f x] - 3 \operatorname{Sin}[e] + 2 \operatorname{Sin}[e + 2 f x] - 2 \operatorname{Sin}[3 e + 2 f x] + \operatorname{Sin}[3 e + 4 f x])$$

Problem 919: Result more than twice size of optimal antiderivative.

$$\int \frac{(c - i c \operatorname{Tan}[e + f x])^4}{a + i a \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 95 leaves, 4 steps):

$$-\frac{12\,c^4\,x}{a}-\frac{12\,i\,c^4\,\text{Log}[\text{Cos}[e+f\,x]]}{a\,f}+\frac{5\,c^4\,\text{Tan}[e+f\,x]}{a\,f}-\frac{i\,c^4\,\text{Tan}[e+f\,x]^2}{2\,a\,f}+\frac{8\,i\,c^4}{f\,(a+i\,a\,\text{Tan}[e+f\,x])}$$

Result (type 3, 194 leaves):

$$\frac{1}{2\,f\,(a+i\,a\,\text{Tan}[e+f\,x])}\,c^4\,\text{Cos}[e]\,\text{Sec}[e+f\,x]\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,\Big(-24\,f\,x-12\,i\,\text{Log}\big[\text{Cos}[e+f\,x]^2\big]+24\,f\,x\,\text{Sec}[e]^2-i\,\text{Sec}[e+f\,x]^2+10\,\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\text{Sin}[f\,x]+8\,\text{Sin}[2\,f\,x]+12\,\text{Log}\big[\text{Cos}[e+f\,x]^2\big]\,\text{Tan}[e]+\text{Sec}[e+f\,x]^2\,\text{Tan}[e]+10\,i\,\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\text{Sin}[f\,x]\,\text{Tan}[e]-8\,i\,\text{Sin}[2\,f\,x]\,\text{Tan}[e]-24\,f\,x\,\text{Tan}[e]^2-24\,i\,\text{ArcTan}[\text{Tan}[f\,x]]\,(-i+\text{Tan}[e])+8\,\text{Cos}[2\,f\,x]\,(i+\text{Tan}[e])\Big)$$

Problem 920: Result more than twice size of optimal antiderivative.

$$\int\frac{(c-i\,c\,\text{Tan}[e+f\,x])^4}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 101 leaves, 4 steps):

$$\frac{6\,c^4\,x}{a^2}+\frac{6\,i\,c^4\,\text{Log}[\text{Cos}[e+f\,x]]}{a^2\,f}-\frac{c^4\,\text{Tan}[e+f\,x]}{a^2\,f}+\frac{4\,i\,c^4}{f\,(a+i\,a\,\text{Tan}[e+f\,x])^2}-\frac{12\,i\,c^4}{f\,\big(a^2+i\,a^2\,\text{Tan}[e+f\,x]\big)}$$

Result (type 3, 279 leaves):

$$\frac{1}{2\,a^2\,f\,(-i+\text{Tan}[e+f\,x])^2}\,c^4\,\text{Sec}[e+f\,x]^2\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,\Big(12\,f\,x+8\,i\,\text{Cos}[2\,f\,x]+i\,\text{Cos}[2\,e-f\,x]\,\text{Sec}[e]\,\text{Sec}[e+f\,x]-i\,\text{Cos}[2\,e+f\,x]\,\text{Sec}[e]\,\text{Sec}[e+f\,x]-24\,f\,x\,\text{Sin}[e]^2-12\,\text{ArcTan}[\text{Tan}[f\,x]]\,(\text{Cos}[2\,e]+i\,\text{Sin}[2\,e])-12\,i\,f\,x\,\text{Sin}[2\,e]-2\,\text{Cos}[4\,f\,x]\,\text{Sin}[2\,e]+6\,\text{Log}\big[\text{Cos}[e+f\,x]^2\big]\,\text{Sin}[2\,e]+8\,\text{Sin}[2\,f\,x]+2\,i\,\text{Sin}[2\,e]\,\text{Sin}[4\,f\,x]-\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\text{Sin}[2\,e-f\,x]+\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\text{Sin}[2\,e+f\,x]+12\,i\,f\,x\,\text{Tan}[e]+2\,i\,\text{Cos}[2\,e]\,\big(6\,i\,f\,x-\text{Cos}[4\,f\,x]-3\,\text{Log}\big[\text{Cos}[e+f\,x]^2\big]+i\,\text{Sin}[4\,f\,x]+6\,f\,x\,\text{Tan}[e]\big)\Big)$$

Problem 924: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^4}{c-i\,c\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 95 leaves, 4 steps):

$$-\frac{12\,a^4\,x}{c}+\frac{12\,i\,a^4\,\text{Log}[\text{Cos}[e+f\,x]]}{c\,f}+\frac{5\,a^4\,\text{Tan}[e+f\,x]}{c\,f}+\frac{i\,a^4\,\text{Tan}[e+f\,x]^2}{2\,c\,f}-\frac{8\,i\,a^4}{f\,(c-i\,c\,\text{Tan}[e+f\,x])}$$

Result (type 3, 376 leaves):

$$-\frac{1}{4 c f (\text{Cos}[f x]+i \text{Sin}[f x])^4} a^4 \text{Sec}[e] \text{Sec}[e+f x]^2 \left(-3 i \text{Cos}[2 e+3 f x]+6 f x \text{Cos}[2 e+3 f x]+2 i \text{Cos}[4 e+3 f x]+6 f x \text{Cos}[4 e+3 f x]+\text{Cos}[f x] \left(5 i+18 f x-9 i \text{Log}\left[\text{Cos}[e+f x]^2\right]\right)+\text{Cos}[2 e+f x] \left(10 i+18 f x-9 i \text{Log}\left[\text{Cos}[e+f x]^2\right]\right)-3 i \text{Cos}[2 e+3 f x] \text{Log}\left[\text{Cos}[e+f x]^2\right]-3 i \text{Cos}[4 e+3 f x] \text{Log}\left[\text{Cos}[e+f x]^2\right]-13 \text{Sin}[f x]-6 i f x \text{Sin}[f x]-3 \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[f x]+2 \text{Sin}[2 e+f x]-6 i f x \text{Sin}[2 e+f x]-3 \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[2 e+f x]-7 \text{Sin}[2 e+3 f x]-6 i f x \text{Sin}[2 e+3 f x]-3 \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[2 e+3 f x]-2 \text{Sin}[4 e+3 f x]-6 i f x \text{Sin}[4 e+3 f x]-3 \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[4 e+3 f x]\right) (\text{Cos}[e+5 f x]+i \text{Sin}[e+5 f x])$$

Problem 925: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \text{Tan}[e+f x])^3}{c-i c \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 71 leaves, 4 steps):

$$-\frac{4 a^3 x}{c}+\frac{4 i a^3 \text{Log}[\text{Cos}[e+f x]]}{c f}+\frac{a^3 \text{Tan}[e+f x]}{c f}-\frac{4 i a^3}{f (c-i c \text{Tan}[e+f x])}$$

Result (type 3, 214 leaves):

$$\frac{1}{2 c f} a^3 \text{Sec}[e] \left(\text{Cos}[3 e+2 f x]-2 i f x \text{Cos}[3 e+2 f x]+\text{Cos}[e] \left(3-4 i f x-2 \text{Log}\left[\text{Cos}[e+f x]^2\right]\right)+\text{Cos}[e+2 f x] \left(-2 i f x-\text{Log}\left[\text{Cos}[e+f x]^2\right]\right)-\text{Cos}[3 e+2 f x] \text{Log}\left[\text{Cos}[e+f x]^2\right]-i \text{Sin}[e]+2 i \text{Sin}[e+2 f x]-2 f x \text{Sin}[e+2 f x]+i \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[e+2 f x]+i \text{Sin}[3 e+2 f x]-2 f x \text{Sin}[3 e+2 f x]+i \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[3 e+2 f x]\right) (-i+\text{Tan}[e+f x])$$

Problem 926: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \text{Tan}[e+f x])^2}{c-i c \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 55 leaves, 4 steps):

$$-\frac{a^2 x}{c}+\frac{i a^2 \text{Log}[\text{Cos}[e+f x]]}{c f}-\frac{2 i a^2}{f (c-i c \text{Tan}[e+f x])}$$

Result (type 3, 130 leaves):

$$-\left(a^2 \left(\text{Cos}[e+f x] \left(2 i+4 f x-i \text{Log}\left[\text{Cos}[e+f x]^2\right]\right)-2 \text{ArcTan}[\text{Tan}[3 e+f x]] (\text{Cos}[e+f x]-i \text{Sin}[e+f x])+\left(-2-4 i f x-\text{Log}\left[\text{Cos}[e+f x]^2\right]\right) \text{Sin}[e+f x]\right) (\text{Cos}[e+3 f x]+i \text{Sin}[e+3 f x])\right) \Big/ \left(2 c f (\text{Cos}[f x]+i \text{Sin}[f x])^2\right)$$

Problem 931: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \text{Tan}[e+f x])^4}{(c-i c \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 101 leaves, 4 steps):

$$\frac{6 a^4 x}{c^2}-\frac{6 i a^4 \text{Log}[\text{Cos}[e+f x]]}{c^2 f}-\frac{a^4 \text{Tan}[e+f x]}{c^2 f}-\frac{4 i a^4}{f (c-i c \text{Tan}[e+f x])^2}+\frac{12 i a^4}{f \left(c^2-i c^2 \text{Tan}[e+f x]\right)}$$

Result (type 3, 374 leaves):

$$\frac{1}{4\,c^2\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^4}\,a^4\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[2\,(e+3\,f\,x)]+i\,\mathrm{Sin}[2\,(e+3\,f\,x)])$$
$$\Big(-3\,i\,\mathrm{Cos}[2\,e+3\,f\,x]+6\,f\,x\,\mathrm{Cos}[2\,e+3\,f\,x]-i\,\mathrm{Cos}[4\,e+3\,f\,x]+6\,f\,x\,\mathrm{Cos}[4\,e+3\,f\,x]+\mathrm{Cos}[f\,x]\,\Big(7\,i+6\,f\,x-3\,i\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\Big)+$$
$$\mathrm{Cos}[2\,e+f\,x]\,\Big(9\,i+6\,f\,x-3\,i\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\Big)-3\,i\,\mathrm{Cos}[2\,e+3\,f\,x]\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]-3\,i\,\mathrm{Cos}[4\,e+3\,f\,x]\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]+\mathrm{Sin}[f\,x]-$$
$$6\,i\,f\,x\,\mathrm{Sin}[f\,x]-3\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\,\mathrm{Sin}[f\,x]+3\,\mathrm{Sin}[2\,e+f\,x]-6\,i\,f\,x\,\mathrm{Sin}[2\,e+f\,x]-3\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\,\mathrm{Sin}[2\,e+f\,x]-\mathrm{Sin}[2\,e+3\,f\,x]-$$
$$6\,i\,f\,x\,\mathrm{Sin}[2\,e+3\,f\,x]-3\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\,\mathrm{Sin}[2\,e+3\,f\,x]+\mathrm{Sin}[4\,e+3\,f\,x]-6\,i\,f\,x\,\mathrm{Sin}[4\,e+3\,f\,x]-3\,\mathrm{Log}\big[\mathrm{Cos}[e+f\,x]^2\big]\,\mathrm{Sin}[4\,e+3\,f\,x]\Big)$$

Problem 934: Result more than twice size of optimal antiderivative.

$$\int \frac{a+i\,a\,\mathrm{Tan}[e+f\,x]}{(c-i\,c\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{i\,a}{2\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^2}$$

Result (type 3, 51 leaves):

$$\frac{a\,(3\,\mathrm{Cos}[e+f\,x]-i\,\mathrm{Sin}[e+f\,x])\,(-i\,\mathrm{Cos}[3\,(e+f\,x)]+\mathrm{Sin}[3\,(e+f\,x)])}{8\,c^2\,f}$$

Problem 938: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{(c-i\,c\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 154 leaves, 4 steps):

$$-\frac{40\,a^6\,x}{c^3}+\frac{40\,i\,a^6\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{c^3\,f}+\frac{9\,a^6\,\mathrm{Tan}[e+f\,x]}{c^3\,f}+\frac{i\,a^6\,\mathrm{Tan}[e+f\,x]^2}{2\,c^3\,f}-$$
$$\frac{32\,i\,a^6}{3\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^3}+\frac{40\,i\,a^6}{c\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^2}-\frac{80\,i\,a^6}{f\,\left(c^3-i\,c^3\,\mathrm{Tan}[e+f\,x]\right)}$$

Result (type 3, 971 leaves):

$$-\frac{40\,x\,\mathrm{Cos}[6\,e]\,\mathrm{Cos}[e+f\,x]^6\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{c^3\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}-\frac{4\,i\,\mathrm{Cos}[6\,f\,x]\,\mathrm{Cos}[e+f\,x]^6\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{3\,c^3\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{20\,i\,\mathrm{Cos}[6\,e]\,\mathrm{Cos}[e+f\,x]^6\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{c^3\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+\frac{\mathrm{Cos}[4\,f\,x]\,\mathrm{Cos}[e+f\,x]^6\left(\frac{6\,i\,\mathrm{Cos}[2\,e]}{c^3}+\frac{6\,\mathrm{Sin}[2\,e]}{c^3}\right)(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{\mathrm{Cos}[2\,f\,x]\,\mathrm{Cos}[e+f\,x]^6\left(-\frac{24\,i\,\mathrm{Cos}[4\,e]}{c^3}-\frac{24\,\mathrm{Sin}[4\,e]}{c^3}\right)(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+\frac{40\,i\,x\,\mathrm{Cos}[e+f\,x]^6\,\mathrm{Sin}[6\,e]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{c^3\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{20\,\mathrm{Cos}[e+f\,x]^6\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[6\,e]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{c^3\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+\frac{\mathrm{Cos}[e+f\,x]^4\left(\frac{i\,\mathrm{Cos}[6\,e]}{2\,c^3}+\frac{\mathrm{Sin}[6\,e]}{2\,c^3}\right)(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{\mathrm{Cos}[e+f\,x]^5\,\mathrm{Sec}[e]\left(\frac{9\,\mathrm{Cos}[6\,e]}{c^3}-\frac{9\,i\,\mathrm{Sin}[6\,e]}{c^3}\right)\mathrm{Sin}[f\,x]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{\mathrm{Cos}[e+f\,x]^6\left(\frac{24\,\mathrm{Cos}[4\,e]}{c^3}-\frac{24\,i\,\mathrm{Sin}[4\,e]}{c^3}\right)\mathrm{Sin}[2\,f\,x]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{\mathrm{Cos}[e+f\,x]^6\left(-\frac{6\,\mathrm{Cos}[2\,e]}{c^3}+\frac{6\,i\,\mathrm{Sin}[2\,e]}{c^3}\right)\mathrm{Sin}[4\,f\,x]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+\frac{4\,\mathrm{Cos}[e+f\,x]^6\,\mathrm{Sin}[6\,f\,x]\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^6}{3\,c^3\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}+$$

$$\frac{1}{(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^6}\,x\,\mathrm{Cos}[e+f\,x]^6\left(\frac{20\,\mathrm{Cos}[e]^4}{c^3}-\frac{20\,\mathrm{Cos}[e]^6}{c^3}-\frac{100\,i\,\mathrm{Cos}[e]^3\,\mathrm{Sin}[e]}{c^3}+\frac{140\,i\,\mathrm{Cos}[e]^5\,\mathrm{Sin}[e]}{c^3}-\frac{200\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^2}{c^3}+\right.$$

$$\frac{420\,\mathrm{Cos}[e]^4\,\mathrm{Sin}[e]^2}{c^3}+\frac{200\,i\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^3}{c^3}-\frac{700\,i\,\mathrm{Cos}[e]^3\,\mathrm{Sin}[e]^3}{c^3}+\frac{100\,\mathrm{Sin}[e]^4}{c^3}-\frac{700\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^4}{c^3}+\frac{420\,i\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^5}{c^3}+$$

$$\left.\frac{140\,\mathrm{Sin}[e]^6}{c^3}-\frac{20\,i\,\mathrm{Sin}[e]^4\,\mathrm{Tan}[e]}{c^3}-\frac{20\,i\,\mathrm{Sin}[e]^6\,\mathrm{Tan}[e]}{c^3}-i\left(\frac{40\,\mathrm{Cos}[6\,e]}{c^3}-\frac{40\,i\,\mathrm{Sin}[6\,e]}{c^3}\right)\mathrm{Tan}[e]\right)(a+i\,a\,\mathrm{Tan}[e+f\,x])^6$$

■ Problem 939: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^5}{(c-i\,c\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 134 leaves, 4 steps) :

$$-\frac{8\,a^5\,x}{c^3}+\frac{8\,i\,a^5\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{c^3\,f}+\frac{a^5\,\mathrm{Tan}[e+f\,x]}{c^3\,f}-\frac{16\,i\,a^5}{3\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^3}-\frac{24\,i\,a^5}{f\left(c^3-i\,c^3\,\mathrm{Tan}[e+f\,x]\right)}+\frac{16\,i\,a^5\,c^5}{f\left(c^4-i\,c^4\,\mathrm{Tan}[e+f\,x]\right)^2}$$

Result (type 3, 923 leaves) :

$$-\frac{8\,x\,\text{Cos}[5\,e]\,\text{Cos}[e+f\,x]^5\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{c^3\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{4\,i\,\text{Cos}[5\,e]\,\text{Cos}[e+f\,x]^5\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{c^3\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+$$

$$\frac{\text{Cos}[6\,f\,x]\,\text{Cos}[e+f\,x]^5\,\left(-\frac{2\,i\,\text{Cos}[e]}{3\,c^3}+\frac{2\,\text{Sin}[e]}{3\,c^3}\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{\text{Cos}[4\,f\,x]\,\text{Cos}[e+f\,x]^5\,\left(\frac{2\,i\,\text{Cos}[e]}{c^3}+\frac{2\,\text{Sin}[e]}{c^3}\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+$$

$$\frac{\text{Cos}[2\,f\,x]\,\text{Cos}[e+f\,x]^5\,\left(-\frac{6\,i\,\text{Cos}[3\,e]}{c^3}-\frac{6\,\text{Sin}[3\,e]}{c^3}\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{8\,i\,x\,\text{Cos}[e+f\,x]^5\,\text{Sin}[5\,e]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{c^3\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+$$

$$\frac{4\,\text{Cos}[e+f\,x]^5\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\,\text{Sin}[5\,e]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{c^3\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{\text{Cos}[e+f\,x]^4\,\left(\frac{\text{Cos}[5\,e]}{c^3}-\frac{i\,\text{Sin}[5\,e]}{c^3}\right)\,\text{Sin}[f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+$$

$$\frac{\text{Cos}[e+f\,x]^5\,\left(\frac{6\,\text{Cos}[3\,e]}{c^3}-\frac{6\,i\,\text{Sin}[3\,e]}{c^3}\right)\,\text{Sin}[2\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{\text{Cos}[e+f\,x]^5\,\left(-\frac{2\,\text{Cos}[e]}{c^3}+\frac{2\,i\,\text{Sin}[e]}{c^3}\right)\,\text{Sin}[4\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+$$

$$\frac{\text{Cos}[e+f\,x]^5\,\left(\frac{2\,\text{Cos}[e]}{3\,c^3}+\frac{2\,i\,\text{Sin}[e]}{3\,c^3}\right)\,\text{Sin}[6\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^5}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}+\frac{1}{(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^5}$$

$$x\,\text{Cos}[e+f\,x]^5\left(\frac{4\,\text{Cos}[e]^3}{c^3}-\frac{4\,\text{Cos}[e]^5}{c^3}-\frac{16\,i\,\text{Cos}[e]^2\,\text{Sin}[e]}{c^3}+\frac{24\,i\,\text{Cos}[e]^4\,\text{Sin}[e]}{c^3}-\right.$$
$$\frac{24\,\text{Cos}[e]\,\text{Sin}[e]^2}{c^3}+\frac{60\,\text{Cos}[e]^3\,\text{Sin}[e]^2}{c^3}+\frac{16\,i\,\text{Sin}[e]^3}{c^3}-\frac{80\,i\,\text{Cos}[e]^2\,\text{Sin}[e]^3}{c^3}-\frac{60\,\text{Cos}[e]\,\text{Sin}[e]^4}{c^3}+$$
$$\left.\frac{24\,i\,\text{Sin}[e]^5}{c^3}+\frac{4\,\text{Sin}[e]^3\,\text{Tan}[e]}{c^3}+\frac{4\,\text{Sin}[e]^5\,\text{Tan}[e]}{c^3}-i\left(\frac{8\,\text{Cos}[5\,e]}{c^3}-\frac{8\,i\,\text{Sin}[5\,e]}{c^3}\right)\text{Tan}[e]\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^5$$

Problem 943: Result more than twice size of optimal antiderivative.

$$\int\frac{a+i\,a\,\text{Tan}[e+f\,x]}{(c-i\,c\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{i\,a}{3\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^3}$$

Result (type 3, 56 leaves):

$$\frac{a\,(3+4\,\text{Cos}[2\,(e+f\,x)]-2\,i\,\text{Sin}[2\,(e+f\,x)])\,(-i\,\text{Cos}[4\,(e+f\,x)]+\text{Sin}[4\,(e+f\,x)])}{24\,c^3\,f}$$

Problem 947: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^6}{(c-i\,c\,\text{Tan}[e+f\,x])^4}\,dx$$

Optimal (type 3, 160 leaves, 4 steps):

$$\frac{10\,a^6\,x}{c^4}-\frac{10\,i\,a^6\,\text{Log}[\text{Cos}[e+f\,x]]}{c^4\,f}-\frac{a^6\,\text{Tan}[e+f\,x]}{c^4\,f}-\frac{8\,i\,a^6}{f\,(c-i\,c\,\text{Tan}[e+f\,x])^4}+\frac{80\,i\,a^6}{3\,c\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^3}-\frac{40\,i\,a^6}{f\left(c^2-i\,c^2\,\text{Tan}[e+f\,x]\right)^2}+\frac{40\,i\,a^6}{f\left(c^4-i\,c^4\,\text{Tan}[e+f\,x]\right)}$$

Result (type 3, 1048 leaves):

$$\frac{10\,x\,\text{Cos}[6\,e]\,\text{Cos}[e+f\,x]^6\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{c^4\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+\frac{4\,i\,\text{Cos}[6\,f\,x]\,\text{Cos}[e+f\,x]^6\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{3\,c^4\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}-$$
$$\frac{5\,i\,\text{Cos}[6\,e]\,\text{Cos}[e+f\,x]^6\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{c^4\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+\frac{\text{Cos}[4\,f\,x]\,\text{Cos}[e+f\,x]^6\left(-\frac{3\,i\,\text{Cos}[2\,e]}{c^4}-\frac{3\,\text{Sin}[2\,e]}{c^4}\right)(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+$$
$$\frac{\text{Cos}[8\,f\,x]\,\text{Cos}[e+f\,x]^6\left(-\frac{i\,\text{Cos}[2\,e]}{2\,c^4}+\frac{\text{Sin}[2\,e]}{2\,c^4}\right)(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+\frac{\text{Cos}[2\,f\,x]\,\text{Cos}[e+f\,x]^6\left(\frac{8\,i\,\text{Cos}[4\,e]}{c^4}+\frac{8\,\text{Sin}[4\,e]}{c^4}\right)(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}-$$
$$\frac{10\,i\,x\,\text{Cos}[e+f\,x]^6\,\text{Sin}[6\,e]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{c^4\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}-\frac{5\,\text{Cos}[e+f\,x]^6\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\,\text{Sin}[6\,e]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{c^4\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}-$$
$$\frac{\text{Cos}[e+f\,x]^5\,\text{Sec}[e]\left(\frac{\text{Cos}[6\,e]}{c^4}-\frac{i\,\text{Sin}[6\,e]}{c^4}\right)\text{Sin}[f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+$$
$$\frac{\text{Cos}[e+f\,x]^6\left(-\frac{8\,\text{Cos}[4\,e]}{c^4}+\frac{8\,i\,\text{Sin}[4\,e]}{c^4}\right)\text{Sin}[2\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+\frac{\text{Cos}[e+f\,x]^6\left(\frac{3\,\text{Cos}[2\,e]}{c^4}-\frac{3\,i\,\text{Sin}[2\,e]}{c^4}\right)\text{Sin}[4\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}-$$
$$\frac{4\,\text{Cos}[e+f\,x]^6\,\text{Sin}[6\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{3\,c^4\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+\frac{\text{Cos}[e+f\,x]^6\left(\frac{\text{Cos}[2\,e]}{2\,c^4}+\frac{i\,\text{Sin}[2\,e]}{2\,c^4}\right)\text{Sin}[8\,f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^6}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}+$$
$$\frac{1}{(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^6}\,x\,\text{Cos}[e+f\,x]^6\left(-\frac{5\,\text{Cos}[e]^4}{c^4}+\frac{5\,\text{Cos}[e]^6}{c^4}+\frac{25\,i\,\text{Cos}[e]^3\,\text{Sin}[e]}{c^4}-\frac{35\,i\,\text{Cos}[e]^5\,\text{Sin}[e]}{c^4}+\frac{50\,\text{Cos}[e]^2\,\text{Sin}[e]^2}{c^4}-\right.$$
$$\frac{105\,\text{Cos}[e]^4\,\text{Sin}[e]^2}{c^4}-\frac{50\,i\,\text{Cos}[e]\,\text{Sin}[e]^3}{c^4}+\frac{175\,i\,\text{Cos}[e]^3\,\text{Sin}[e]^3}{c^4}-\frac{25\,\text{Sin}[e]^4}{c^4}+\frac{175\,\text{Cos}[e]^2\,\text{Sin}[e]^4}{c^4}-\frac{105\,i\,\text{Cos}[e]\,\text{Sin}[e]^5}{c^4}-$$
$$\left.\frac{35\,\text{Sin}[e]^6}{c^4}+\frac{5\,i\,\text{Sin}[e]^4\,\text{Tan}[e]}{c^4}+\frac{5\,i\,\text{Sin}[e]^6\,\text{Tan}[e]}{c^4}+i\left(\frac{10\,\text{Cos}[6\,e]}{c^4}-\frac{10\,i\,\text{Sin}[6\,e]}{c^4}\right)\text{Tan}[e]\right)(a+i\,a\,\text{Tan}[e+f\,x])^6$$

Problem 952: Result more than twice size of optimal antiderivative.

$$\int\frac{a+i\,a\,\text{Tan}[e+f\,x]}{(c-i\,c\,\text{Tan}[e+f\,x])^4}\,dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{i\,a}{4\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^4}$$

Result (type 3, 74 leaves):

$$\frac{1}{64 c^4 f} a (10 \cos[e + f x] + 5 \cos[3 (e + f x)] - i (2 \sin[e + f x] + 3 \sin[3 (e + f x)])) (- i \cos[5 (e + f x)] + \sin[5 (e + f x)])$$

Problem 970: Result more than twice size of optimal antiderivative.

$$\int (a + i a \tan[e + f x]) (c - i c \tan[e + f x])^{5/2} \, dx$$

Optimal (type 3, 27 leaves, 3 steps):

$$\frac{2 i a (c - i c \tan[e + f x])^{5/2}}{5 f}$$

Result (type 3, 70 leaves):

$$\frac{2 a c^2 \sec[e + f x]^2 (\cos[f x] - i \sin[f x]) (i \cos[2 e + f x] + \sin[2 e + f x]) \sqrt{c - i c \tan[e + f x]}}{5 f}$$

Problem 971: Attempted integration timed out after 120 seconds.

$$\int \frac{(c - i c \tan[e + f x])^{5/2}}{a + i a \tan[e + f x]} \, dx$$

Optimal (type 3, 125 leaves, 6 steps):

$$-\frac{3 i \sqrt{2} c^{5/2} \text{ArcTanh}\left[\frac{\sqrt{c - i c \tan[e+f x]}}{\sqrt{2} \sqrt{c}}\right]}{a f} + \frac{3 i c^2 \sqrt{c - i c \tan[e + f x]}}{a f} + \frac{i c^2 (c - i c \tan[e + f x])^{3/2}}{a f (c + i c \tan[e + f x])}$$

Result (type 1, 1 leaves):

???

Problem 976: Result more than twice size of optimal antiderivative.

$$\int \frac{a + i a \tan[e + f x]}{\sqrt{c - i c \tan[e + f x]}} \, dx$$

Optimal (type 3, 25 leaves, 3 steps):

$$-\frac{2 i a}{f \sqrt{c - i c \tan[e + f x]}}$$

Result (type 3, 64 leaves):

$$\frac{2 a \cos[e + f x] (\cos[f x] - i \sin[f x]) (- i \cos[e + 2 f x] + \sin[e + 2 f x]) \sqrt{c - i c \tan[e + f x]}}{c f}$$

Problem 982: Result more than twice size of optimal antiderivative.

$$\int \frac{a + i a \tan[e + f x]}{(c - i c \tan[e + f x])^{3/2}} \, dx$$

Optimal (type 3, 27 leaves, 3 steps):

$$-\frac{2 i a}{3 f (c - i c \tan[e + f x])^{3/2}}$$

Result (type 3, 72 leaves):

$$\frac{2 a \cos[e + f x]^2 (\cos[f x] - i \sin[f x]) (-i \cos[2 e + 3 f x] + \sin[2 e + 3 f x]) \sqrt{c - i c \tan[e + f x]}}{3 c^2 f}$$

Problem 988: Result more than twice size of optimal antiderivative.

$$\int \frac{a + i a \tan[e + f x]}{(c - i c \tan[e + f x])^{5/2}} \, dx$$

Optimal (type 3, 27 leaves, 3 steps):

$$-\frac{2 i a}{5 f (c - i c \tan[e + f x])^{5/2}}$$

Result (type 3, 72 leaves):

$$\frac{2 a \cos[e + f x]^3 (\cos[f x] - i \sin[f x]) (-i \cos[3 e + 4 f x] + \sin[3 e + 4 f x]) \sqrt{c - i c \tan[e + f x]}}{5 c^3 f}$$

Problem 1007: Result more than twice size of optimal antiderivative.

$$\int (a + i a \tan[e + f x])^{5/2} (c - i c \tan[e + f x])^{5/2} \, dx$$

Optimal (type 3, 168 leaves, 6 steps):

$$-\frac{3 i a^{5/2} c^{5/2} \operatorname{ArcTan}\left[\frac{\sqrt{c} \sqrt{a + i a \tan[e+f x]}}{\sqrt{a} \sqrt{c - i c \tan[e+f x]}}\right]}{4 f} + \frac{3 a^2 c^2 \tan[e + f x] \sqrt{a + i a \tan[e + f x]} \sqrt{c - i c \tan[e + f x]}}{8 f} + \frac{a c \tan[e + f x] (a + i a \tan[e + f x])^{3/2} (c - i c \tan[e + f x])^{3/2}}{4 f}$$

Result (type 3, 358 leaves):

$$-\frac{3\,i\,c^3\,e^{-i\,(3e+f x)}\,\sqrt{e^{i f x}}\,\sqrt{\frac{e^{i\,(e+f x)}}{1+e^{2 i\,(e+f x)}}}\,\text{ArcTan}\left[e^{i\,(e+f x)}\right]\,(a+i\,a\,\text{Tan}[e+f x])^{5/2}}{4\,\sqrt{\frac{c}{1+e^{2 i\,(e+f x)}}}\,f\,\text{Sec}[e+f x]^{5/2}\,(\text{Cos}[f x]+i\,\text{Sin}[f x])^{5/2}}+$$

$$\frac{1}{f\,(\text{Cos}[f x]+i\,\text{Sin}[f x])^2}\,\text{Cos}[e+f x]^2\,\sqrt{\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]-i\,c\,\text{Sin}[e+f x])}$$
$$\left(c^2\,\text{Sec}[e]\,\text{Sec}[e+f x]^3\left(\frac{1}{4}\text{Cos}[2 e]-\frac{1}{4}i\,\text{Sin}[2 e]\right)\text{Sin}[f x]+c^2\,\text{Sec}[e]\,\text{Sec}[e+f x]\left(\frac{3}{8}\text{Cos}[2 e]-\frac{3}{8}i\,\text{Sin}[2 e]\right)\text{Sin}[f x]+\right.$$
$$\left.\text{Sec}[e+f x]^2\left(\frac{1}{4}c^2\,\text{Cos}[2 e]-\frac{1}{4}i\,c^2\,\text{Sin}[2 e]\right)\text{Tan}[e]+\left(\frac{3}{8}c^2\,\text{Cos}[2 e]-\frac{3}{8}i\,c^2\,\text{Sin}[2 e]\right)\text{Tan}[e]\right)(a+i\,a\,\text{Tan}[e+f x])^{5/2}$$

Problem 1012: Result more than twice size of optimal antiderivative.

$$\int\frac{(c-i\,c\,\text{Tan}[e+f x])^{5/2}}{(a+i\,a\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 43 leaves, 2 steps):

$$\frac{i\,(c-i\,c\,\text{Tan}[e+f x])^{5/2}}{5\,f\,(a+i\,a\,\text{Tan}[e+f x])^{5/2}}$$

Result (type 3, 90 leaves):

$$-\frac{i\,c^2\,\text{Sec}[e+f x]^2\,(\text{Cos}[2\,(e+f x)]-i\,\text{Sin}[2\,(e+f x)])\,\sqrt{c-i\,c\,\text{Tan}[e+f x]}}{5\,a^2\,f\,(-i+\text{Tan}[e+f x])^2\,\sqrt{a+i\,a\,\text{Tan}[e+f x]}}$$

Problem 1027: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f x])^{3/2}}{(c-i\,c\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 43 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\text{Tan}[e+f x])^{3/2}}{3\,f\,(c-i\,c\,\text{Tan}[e+f x])^{3/2}}$$

Result (type 3, 87 leaves):

$$\frac{1}{3\,c^2\,f}a\,\text{Cos}[e+f x]\,(\text{Cos}[f x]-i\,\text{Sin}[f x])\,(-i\,\text{Cos}[3 e+4 f x]+\text{Sin}[3 e+4 f x])\,\sqrt{a+i\,a\,\text{Tan}[e+f x]}\,\sqrt{c-i\,c\,\text{Tan}[e+f x]}$$

Problem 1036: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f x])^{5/2}}{(c-i\,c\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 43 leaves, 2 steps):

$$-\frac{i\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

Result (type 3, 91 leaves):

$$\frac{a^2\,\mathrm{Cos}[e+f\,x]\,(-i\,\mathrm{Cos}[5\,e+7\,f\,x]+\mathrm{Sin}[5\,e+7\,f\,x])\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c-i\,c\,\mathrm{Tan}[e+f\,x]}}{5\,c^3\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2}$$

- **Problem 1047: Unable to integrate problem.**

$$\int\frac{(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[2,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{4\,a\,f\,n}$$

Result (type 8, 33 leaves):

$$\int\frac{(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

- **Problem 1048: Attempted integration timed out after 120 seconds.**

$$\int\frac{(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[3,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{8\,a^2\,f\,n}$$

Result (type 1, 1 leaves):

???

- **Problem 1049: Attempted integration timed out after 120 seconds.**

$$\int\frac{(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[4,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{16\,a^3\,f\,n}$$

Result (type 1, 1 leaves):

???

Problem 1050: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^m (c-i c \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 5, 66 leaves, 3 steps):

$$\frac{i \operatorname{Hypergeometric2F1}\left[1, m+n, 1+n, \frac{1}{2} (1-i \operatorname{Tan}[e+f x])\right] (a+i a \operatorname{Tan}[e+f x])^m (c-i c \operatorname{Tan}[e+f x])^n}{2 f n}$$

Result (type 5, 154 leaves):

$$-\frac{1}{f m} i\, 2^{-1+m+n} \left(e^{i f x}\right)^m \left(\frac{c}{1+e^{2 i (e+f x)}}\right)^n \left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m \left(1+e^{2 i (e+f x)}\right)^{m+n}$$
$$\operatorname{Hypergeometric2F1}\left[m, m+n, 1+m, -e^{2 i (e+f x)}\right] \operatorname{Sec}[e+f x]^{-m} (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^{-m} (a+i a \operatorname{Tan}[e+f x])^m$$

Problem 1051: Attempted integration timed out after 120 seconds.

$$\int (a+i a \operatorname{Tan}[e+f x])^m (c-i c \operatorname{Tan}[e+f x])^4 \, dx$$

Optimal (type 3, 134 leaves, 4 steps):

$$-\frac{8 i c^4 (a+i a \operatorname{Tan}[e+f x])^m}{f m}+\frac{12 i c^4 (a+i a \operatorname{Tan}[e+f x])^{1+m}}{a f (1+m)}-\frac{6 i c^4 (a+i a \operatorname{Tan}[e+f x])^{2+m}}{a^2 f (2+m)}+\frac{i c^4 (a+i a \operatorname{Tan}[e+f x])^{3+m}}{a^3 f (3+m)}$$

Result (type 1, 1 leaves):

???

Problem 1052: Attempted integration timed out after 120 seconds.

$$\int (a+i a \operatorname{Tan}[e+f x])^m (c-i c \operatorname{Tan}[e+f x])^3 \, dx$$

Optimal (type 3, 99 leaves, 4 steps):

$$-\frac{4 i c^3 (a+i a \operatorname{Tan}[e+f x])^m}{f m}+\frac{4 i c^3 (a+i a \operatorname{Tan}[e+f x])^{1+m}}{a f (1+m)}-\frac{i c^3 (a+i a \operatorname{Tan}[e+f x])^{2+m}}{a^2 f (2+m)}$$

Result (type 1, 1 leaves):

???

Problem 1053: Attempted integration timed out after 120 seconds.

$$\int (a+i a \operatorname{Tan}[e+f x])^m (c-i c \operatorname{Tan}[e+f x])^2 \, dx$$

Optimal (type 3, 64 leaves, 4 steps):

$$-\frac{2 i c^2 (a+i a \operatorname{Tan}[e+f x])^m}{f m}+\frac{i c^2 (a+i a \operatorname{Tan}[e+f x])^{1+m}}{a f (1+m)}$$

Result (type 1, 1 leaves):

???

Problem 1054: Result more than twice size of optimal antiderivative.

$$\int (a + i a \operatorname{Tan}[e + f x])^m (c - i c \operatorname{Tan}[e + f x]) \, dx$$

Optimal (type 3, 26 leaves, 3 steps):

$$-\frac{i c (a + i a \operatorname{Tan}[e + f x])^m}{f m}$$

Result (type 3, 95 leaves):

$$-\frac{i 2^m c \left(e^{i f x}\right)^m \left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m \operatorname{Sec}[e + f x]^{-m} (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^{-m} (a + i a \operatorname{Tan}[e + f x])^m}{f m}$$

Problem 1055: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^m}{c - i c \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$-\frac{i \operatorname{Hypergeometric2F1}\left[2, m, 1 + m, \frac{1}{2} (1 + i \operatorname{Tan}[e + f x])\right] (a + i a \operatorname{Tan}[e + f x])^m}{4 c f m}$$

Result (type 5, 177 leaves):

$$-\frac{1}{c f m (1 + m)} i 2^{-2+m} \left(e^{i f x}\right)^m \left(\frac{e^{i (e+f x)}}{1 + e^{2 i (e+f x)}}\right)^m \left(1 + e^{2 i (e+f x)}\right)^m$$
$$\left((1 + m) \operatorname{Hypergeometric2F1}\left[m, m, 1 + m, -e^{2 i (e+f x)}\right] + e^{2 i (e+f x)} m \operatorname{Hypergeometric2F1}\left[m, 1 + m, 2 + m, -e^{2 i (e+f x)}\right]\right)$$
$$\operatorname{Sec}[e + f x]^{-m} (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^{-m} (a + i a \operatorname{Tan}[e + f x])^m$$

Problem 1056: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^m}{(c - i c \operatorname{Tan}[e + f x])^2} \, dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$-\frac{i \operatorname{Hypergeometric2F1}\left[3, m, 1 + m, \frac{1}{2} (1 + i \operatorname{Tan}[e + f x])\right] (a + i a \operatorname{Tan}[e + f x])^m}{8 c^2 f m}$$

Result (type 1, 1 leaves):

???

Problem 1057: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^m}{(c - i c \operatorname{Tan}[e + f x])^3} \, dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$-\frac{i \text{Hypergeometric2F1}\left[4, m, 1+m, \frac{1}{2} (1+i \text{Tan}[e+f x])\right] (a+i a \text{Tan}[e+f x])^m}{16 c^3 f m}$$

Result (type 1, 1 leaves):

???

Problem 1058: Attempted integration timed out after 120 seconds.

$$\int \frac{(a+i a \text{Tan}[e+f x])^m}{(c-i c \text{Tan}[e+f x])^4} \, dx$$

Optimal (type 5, 52 leaves, 3 steps):

$$-\frac{i \text{Hypergeometric2F1}\left[5, m, 1+m, \frac{1}{2} (1+i \text{Tan}[e+f x])\right] (a+i a \text{Tan}[e+f x])^m}{32 c^4 f m}$$

Result (type 1, 1 leaves):

???

Problem 1059: Attempted integration timed out after 120 seconds.

$$\int (a+i a \text{Tan}[e+f x])^m (c-i c \text{Tan}[e+f x])^{5/2} \, dx$$

Optimal (type 5, 67 leaves, 3 steps):

$$\frac{i \text{Hypergeometric2F1}\left[1, \frac{5}{2}+m, \frac{7}{2}, \frac{1}{2} (1-i \text{Tan}[e+f x])\right] (a+i a \text{Tan}[e+f x])^m (c-i c \text{Tan}[e+f x])^{5/2}}{5 f}$$

Result (type 1, 1 leaves):

???

Problem 1060: Result more than twice size of optimal antiderivative.

$$\int (a+i a \text{Tan}[e+f x])^m (c-i c \text{Tan}[e+f x])^{3/2} \, dx$$

Optimal (type 5, 67 leaves, 3 steps):

$$\frac{i \text{Hypergeometric2F1}\left[1, \frac{3}{2}+m, \frac{5}{2}, \frac{1}{2} (1-i \text{Tan}[e+f x])\right] (a+i a \text{Tan}[e+f x])^m (c-i c \text{Tan}[e+f x])^{3/2}}{3 f}$$

Result (type 5, 161 leaves):

$$-\frac{1}{f m} i \, 2^{\frac{1}{2}+m} \left(e^{i f x}\right)^m \left(\frac{c}{1+e^{2 i (e+f x)}}\right)^{3/2} \left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m \left(1+e^{2 i (e+f x)}\right)^{\frac{3}{2}+m}$$
$$\text{Hypergeometric2F1}\left[m, \frac{3}{2}+m, 1+m, -e^{2 i (e+f x)}\right] \text{Sec}[e+f x]^{-m} (\text{Cos}[f x]+i \text{Sin}[f x])^{-m} (a+i a \text{Tan}[e+f x])^m$$

- **Problem 1061: Result more than twice size of optimal antiderivative.**

$$\int (a + i\, a \,\mathrm{Tan}[e + f\, x])^m \sqrt{c - i\, c \,\mathrm{Tan}[e + f\, x]}\, dx$$

Optimal (type 5, 65 leaves, 3 steps):

$$\frac{i\,\mathrm{Hypergeometric2F1}\left[1, \frac{1}{2} + m, \frac{3}{2}, \frac{1}{2} (1 - i\,\mathrm{Tan}[e + f\, x])\right] (a + i\, a\,\mathrm{Tan}[e + f\, x])^m \sqrt{c - i\, c\,\mathrm{Tan}[e + f\, x]}}{f}$$

Result (type 5, 161 leaves):

$$-\frac{1}{f\, m} i\, 2^{-\frac{1}{2}+m} \left(e^{i\, f\, x}\right)^m \sqrt{\frac{c}{1 + e^{2\, i\, (e+f\, x)}}} \left(\frac{e^{i\, (e+f\, x)}}{1 + e^{2\, i\, (e+f\, x)}}\right)^m \left(1 + e^{2\, i\, (e+f\, x)}\right)^{\frac{1}{2}+m}$$
$$\mathrm{Hypergeometric2F1}\left[m, \frac{1}{2} + m, 1 + m, -e^{2\, i\, (e+f\, x)}\right] \mathrm{Sec}[e + f\, x]^{-m} (\mathrm{Cos}[f\, x] + i\,\mathrm{Sin}[f\, x])^{-m} (a + i\, a\,\mathrm{Tan}[e + f\, x])^m$$

- **Problem 1062: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a + i\, a\,\mathrm{Tan}[e + f\, x])^m}{\sqrt{c - i\, c\,\mathrm{Tan}[e + f\, x]}}\, dx$$

Optimal (type 5, 65 leaves, 3 steps):

$$-\frac{i\,\mathrm{Hypergeometric2F1}\left[1, -\frac{1}{2} + m, \frac{1}{2}, \frac{1}{2} (1 - i\,\mathrm{Tan}[e + f\, x])\right] (a + i\, a\,\mathrm{Tan}[e + f\, x])^m}{f \sqrt{c - i\, c\,\mathrm{Tan}[e + f\, x]}}$$

Result (type 5, 161 leaves):

$$-\frac{1}{\sqrt{\frac{c}{1+e^{2\, i\, (e+f\, x)}}}\, f\, m} i\, 2^{-\frac{3}{2}+m} \left(e^{i\, f\, x}\right)^m \left(\frac{e^{i\, (e+f\, x)}}{1 + e^{2\, i\, (e+f\, x)}}\right)^m \left(1 + e^{2\, i\, (e+f\, x)}\right)^{-\frac{1}{2}+m}$$
$$\mathrm{Hypergeometric2F1}\left[-\frac{1}{2} + m, m, 1 + m, -e^{2\, i\, (e+f\, x)}\right] \mathrm{Sec}[e + f\, x]^{-m} (\mathrm{Cos}[f\, x] + i\,\mathrm{Sin}[f\, x])^{-m} (a + i\, a\,\mathrm{Tan}[e + f\, x])^m$$

- **Problem 1063: Attempted integration timed out after 120 seconds.**

$$\int \frac{(a + i\, a\,\mathrm{Tan}[e + f\, x])^m}{(c - i\, c\,\mathrm{Tan}[e + f\, x])^{3/2}}\, dx$$

Optimal (type 5, 67 leaves, 3 steps):

$$-\frac{i\,\mathrm{Hypergeometric2F1}\left[1, -\frac{3}{2} + m, -\frac{1}{2}, \frac{1}{2} (1 - i\,\mathrm{Tan}[e + f\, x])\right] (a + i\, a\,\mathrm{Tan}[e + f\, x])^m}{3\, f\, (c - i\, c\,\mathrm{Tan}[e + f\, x])^{3/2}}$$

Result (type 1, 1 leaves):

???

Problem 1064: Attempted integration timed out after 120 seconds.

$$\int \frac{(a + i\, a \operatorname{Tan}[e + f x])^m}{(c - i\, c \operatorname{Tan}[e + f x])^{5/2}}\, dx$$

Optimal (type 5, 67 leaves, 3 steps):

$$-\frac{i \operatorname{Hypergeometric2F1}\left[1, -\frac{5}{2} + m, -\frac{3}{2}, \frac{1}{2} (1 - i \operatorname{Tan}[e + f x])\right] (a + i\, a \operatorname{Tan}[e + f x])^m}{5 f (c - i\, c \operatorname{Tan}[e + f x])^{5/2}}$$

Result (type 1, 1 leaves):

???

Problem 1065: Result more than twice size of optimal antiderivative.

$$\int (a + i\, a \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])\, dx$$

Optimal (type 3, 110 leaves, 4 steps):

$$4 a^3 (c - i\, d)\, x - \frac{4 a^3 (i\, c + d) \operatorname{Log}[\operatorname{Cos}[e + f x]]}{f} - \frac{2 a^3 (c - i\, d) \operatorname{Tan}[e + f x]}{f} + \frac{a (i\, c + d) (a + i\, a \operatorname{Tan}[e + f x])^2}{2 f} + \frac{d (a + i\, a \operatorname{Tan}[e + f x])^3}{3 f}$$

Result (type 3, 883 leaves):

$$\left(\text{Cos}[e+f x]^4 \left(c\,\text{Cos}\left[\frac{3e}{2}\right] - i\,d\,\text{Cos}\left[\frac{3e}{2}\right] - i\,c\,\text{Sin}\left[\frac{3e}{2}\right] - d\,\text{Sin}\left[\frac{3e}{2}\right]\right) \left(-2\,i\,\text{Cos}\left[\frac{3e}{2}\right] \text{Log}\left[\text{Cos}[e+f x]^2\right] - 2\,\text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}\left[\frac{3e}{2}\right]\right) (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])\right) \Big/ \left(f (\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right) +$$

$$\left(\text{Cos}[e+f x]^2 (3\,c\,\text{Cos}[e] - 9\,i\,d\,\text{Cos}[e] + 2\,d\,\text{Sin}[e]) \left(-\frac{1}{6}\,i\,\text{Cos}[3e] - \frac{1}{6}\,\text{Sin}[3e]\right) (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])\right) \Big/ \left(f \left(\text{Cos}\left[\frac{e}{2}\right] - \text{Sin}\left[\frac{e}{2}\right]\right) \left(\text{Cos}\left[\frac{e}{2}\right] + \text{Sin}\left[\frac{e}{2}\right]\right) (\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right) +$$

$$\frac{(c-i\,d)\,\text{Cos}[e+f x]^4 (4\,f\,x\,\text{Cos}[3e] - 4\,i\,f\,x\,\text{Sin}[3e]) (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])}{f (\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])} -$$

$$\frac{i\,d\,\text{Cos}[e+f x] \left(\frac{1}{3}\,\text{Cos}[3e] - \frac{1}{3}\,i\,\text{Sin}[3e]\right) \text{Sin}[f x] (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])}{f \left(\text{Cos}\left[\frac{e}{2}\right] - \text{Sin}\left[\frac{e}{2}\right]\right) \left(\text{Cos}\left[\frac{e}{2}\right] + \text{Sin}\left[\frac{e}{2}\right]\right) (\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])} +$$

$$\left(\text{Cos}[e+f x]^3 \left(\frac{1}{3}\,\text{Cos}[3e] - \frac{1}{3}\,i\,\text{Sin}[3e]\right) (-9\,c\,\text{Sin}[f x] + 13\,i\,d\,\text{Sin}[f x]) (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])\right) \Big/ \left(f \left(\text{Cos}\left[\frac{e}{2}\right] - \text{Sin}\left[\frac{e}{2}\right]\right) \left(\text{Cos}\left[\frac{e}{2}\right] + \text{Sin}\left[\frac{e}{2}\right]\right) (\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right) +$$

$$\frac{1}{(\text{Cos}[f x]+i\,\text{Sin}[f x])^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])} x\,\text{Cos}[e+f x]^4 \Big(-2\,c\,\text{Cos}[e] + 2\,i\,d\,\text{Cos}[e] + 2\,c\,\text{Cos}[e]^3 - 2\,i\,d\,\text{Cos}[e]^3 + 4\,i\,c\,\text{Sin}[e] + 4\,d\,\text{Sin}[e] - 8\,i\,c\,\text{Cos}[e]^2\,\text{Sin}[e] - 8\,d\,\text{Cos}[e]^2\,\text{Sin}[e] - 12\,c\,\text{Cos}[e]\,\text{Sin}[e]^2 + 12\,i\,d\,\text{Cos}[e]\,\text{Sin}[e]^2 + 8\,i\,c\,\text{Sin}[e]^3 + 8\,d\,\text{Sin}[e]^3 + 2\,c\,\text{Sin}[e]\,\text{Tan}[e] - 2\,i\,d\,\text{Sin}[e]\,\text{Tan}[e] + 2\,c\,\text{Sin}[e]^3\,\text{Tan}[e] - 2\,i\,d\,\text{Sin}[e]^3\,\text{Tan}[e] + i\,(c-i\,d)\,(4\,\text{Cos}[3e] - 4\,i\,\text{Sin}[3e])\,\text{Tan}[e]\Big) (a+i\,a\,\text{Tan}[e+f x])^3 (c+d\,\text{Tan}[e+f x])$$

- **Problem 1066: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[e+f x])^2 (c+d\,\text{Tan}[e+f x])\,dx$$

Optimal (type 3, 80 leaves, 3 steps):

$$2\,a^2\,(c-i\,d)\,x - \frac{2\,a^2\,(i\,c+d)\,\text{Log}[\text{Cos}[e+f x]]}{f} - \frac{a^2\,(c-i\,d)\,\text{Tan}[e+f x]}{f} + \frac{d\,(a+i\,a\,\text{Tan}[e+f x])^2}{2\,f}$$

Result (type 3, 263 leaves):

$$\frac{1}{4\,f\,(\text{Cos}[f x]+i\,\text{Sin}[f x])^2} a^2\,\text{Sec}[e]\,\text{Sec}[e+f x]^2\,(\text{Cos}[2\,f x]+i\,\text{Sin}[2\,f x]) \Big(-8\,(c-i\,d)\,\text{ArcTan}[\text{Tan}[3e+f x]]\,\text{Cos}[e]\,\text{Cos}[e+f x]^2 - i\,\Big(4\,i\,c\,f\,x\,\text{Cos}[3e+2f x] + 4\,d\,f\,x\,\text{Cos}[3e+2f x] + (i\,c+d)\,\text{Cos}[e+2f x]\,\left(4\,f\,x - i\,\text{Log}\left[\text{Cos}[e+f x]^2\right]\right) + c\,\text{Cos}[3e+2f x]\,\text{Log}\left[\text{Cos}[e+f x]^2\right] - i\,d\,\text{Cos}[3e+2f x]\,\text{Log}\left[\text{Cos}[e+f x]^2\right] + 2\,\text{Cos}[e]\,\left(-i\,d + 4\,i\,c\,f\,x + 4\,d\,f\,x + (c-i\,d)\,\text{Log}\left[\text{Cos}[e+f x]^2\right]\right) + 2\,i\,c\,\text{Sin}[e] + 4\,d\,\text{Sin}[e] - 2\,i\,c\,\text{Sin}[e+2f x] - 4\,d\,\text{Sin}[e+2f x]\Big)\Big)$$

Problem 1068: Result more than twice size of optimal antiderivative.

$$\int \frac{c + d \operatorname{Tan}[e + f x]}{a + i a \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 47 leaves, 2 steps):

$$\frac{(c - i d) x}{2 a} + \frac{i c - d}{2 f (a + i a \operatorname{Tan}[e + f x])}$$

Result (type 3, 102 leaves):

$$\frac{\operatorname{Cos}[e + f x] (c + d \operatorname{Tan}[e + f x]) (c - 2 i c f x + d (i - 2 f x) + (d - 2 i d f x + c (-i + 2 f x)) \operatorname{Tan}[e + f x])}{4 a f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (-i + \operatorname{Tan}[e + f x])}$$

Problem 1071: Result more than twice size of optimal antiderivative.

$$\int (a + i a \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^2 \, dx$$

Optimal (type 3, 153 leaves, 5 steps):

$$4 a^3 (c - i d)^2 x - \frac{4 i a^3 (c - i d)^2 \operatorname{Log}[\operatorname{Cos}[e + f x]]}{f} - \frac{2 a^3 (c - i d)^2 \operatorname{Tan}[e + f x]}{f} + \frac{i a (c - i d)^2 (a + i a \operatorname{Tan}[e + f x])^2}{2 f} + \frac{2 c d (a + i a \operatorname{Tan}[e + f x])^3}{3 f} - \frac{i d^2 (a + i a \operatorname{Tan}[e + f x])^4}{4 a f}$$

Result (type 3, 948 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3}\text{Cos}[e+f\,x]^3\left(c^2\,\text{Cos}\left[\frac{3\,e}{2}\right]-2\,\mathrm{i}\,c\,d\,\text{Cos}\left[\frac{3\,e}{2}\right]-d^2\,\text{Cos}\left[\frac{3\,e}{2}\right]-\mathrm{i}\,c^2\,\text{Sin}\left[\frac{3\,e}{2}\right]-2\,c\,d\,\text{Sin}\left[\frac{3\,e}{2}\right]+\mathrm{i}\,d^2\,\text{Sin}\left[\frac{3\,e}{2}\right]\right)$$
$$\left(-2\,\mathrm{i}\,\text{Cos}\left[\frac{3\,e}{2}\right]\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]-2\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\,\text{Sin}\left[\frac{3\,e}{2}\right]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3+$$
$$\left(\text{Cos}[e+f\,x]\,\left(3\,c^2\,\text{Cos}[e]-18\,\mathrm{i}\,c\,d\,\text{Cos}[e]-15\,d^2\,\text{Cos}[e]+4\,c\,d\,\text{Sin}[e]-6\,\mathrm{i}\,d^2\,\text{Sin}[e]\right)\,\left(-\frac{1}{6}\,\mathrm{i}\,\text{Cos}[3\,e]-\frac{1}{6}\,\text{Sin}[3\,e]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3\right)\Big/$$
$$\left(f\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3\right)+\frac{\text{Sec}[e+f\,x]\,\left(-\frac{1}{4}\,\mathrm{i}\,d^2\,\text{Cos}[3\,e]-\frac{1}{4}\,d^2\,\text{Sin}[3\,e]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3}{f\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3}+$$
$$\frac{(c-\mathrm{i}\,d)^2\,\text{Cos}[e+f\,x]^3\,(4\,f\,x\,\text{Cos}[3\,e]-4\,\mathrm{i}\,f\,x\,\text{Sin}[3\,e])\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3}{f\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3}+$$
$$\frac{\left(\frac{1}{3}\,\text{Cos}[3\,e]-\frac{1}{3}\,\mathrm{i}\,\text{Sin}[3\,e]\right)\,\left(-2\,\mathrm{i}\,c\,d\,\text{Sin}[f\,x]-3\,d^2\,\text{Sin}[f\,x]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3}{f\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3}+$$
$$\left(\text{Cos}[e+f\,x]^2\,\left(\frac{1}{3}\,\text{Cos}[3\,e]-\frac{1}{3}\,\mathrm{i}\,\text{Sin}[3\,e]\right)\,\left(-9\,c^2\,\text{Sin}[f\,x]+26\,\mathrm{i}\,c\,d\,\text{Sin}[f\,x]+15\,d^2\,\text{Sin}[f\,x]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3\right)\Big/$$
$$\left(f\,\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\,\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)\,(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3\right)+\frac{1}{(\text{Cos}[f\,x]+\mathrm{i}\,\text{Sin}[f\,x])^3}$$
$$x\,\text{Cos}[e+f\,x]^3\,\left(-2\,c^2\,\text{Cos}[e]+4\,\mathrm{i}\,c\,d\,\text{Cos}[e]+2\,d^2\,\text{Cos}[e]+2\,c^2\,\text{Cos}[e]^3-4\,\mathrm{i}\,c\,d\,\text{Cos}[e]^3-2\,d^2\,\text{Cos}[e]^3+4\,\mathrm{i}\,c^2\,\text{Sin}[e]+8\,c\,d\,\text{Sin}[e]-\right.$$
$$4\,\mathrm{i}\,d^2\,\text{Sin}[e]-8\,\mathrm{i}\,c^2\,\text{Cos}[e]^2\,\text{Sin}[e]-16\,c\,d\,\text{Cos}[e]^2\,\text{Sin}[e]+8\,\mathrm{i}\,d^2\,\text{Cos}[e]^2\,\text{Sin}[e]-12\,c^2\,\text{Cos}[e]\,\text{Sin}[e]^2+24\,\mathrm{i}\,c\,d\,\text{Cos}[e]\,\text{Sin}[e]^2+$$
$$12\,d^2\,\text{Cos}[e]\,\text{Sin}[e]^2+8\,\mathrm{i}\,c^2\,\text{Sin}[e]^3+16\,c\,d\,\text{Sin}[e]^3-8\,\mathrm{i}\,d^2\,\text{Sin}[e]^3+2\,c^2\,\text{Sin}[e]\,\text{Tan}[e]-4\,\mathrm{i}\,c\,d\,\text{Sin}[e]\,\text{Tan}[e]-2\,d^2\,\text{Sin}[e]\,\text{Tan}[e]+$$
$$\left.2\,c^2\,\text{Sin}[e]^3\,\text{Tan}[e]-4\,\mathrm{i}\,c\,d\,\text{Sin}[e]^3\,\text{Tan}[e]-2\,d^2\,\text{Sin}[e]^3\,\text{Tan}[e]+\mathrm{i}\,(c-\mathrm{i}\,d)^2\,(4\,\text{Cos}[3\,e]-4\,\mathrm{i}\,\text{Sin}[3\,e])\,\text{Tan}[e]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3$$

- **Problem 1072: Result more than twice size of optimal antiderivative.**

$$\int(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^2\,dx$$

Optimal (type 3, 116 leaves, 4 steps):

$$2\,a^2\,(c-\mathrm{i}\,d)^2\,x-\frac{2\,\mathrm{i}\,a^2\,(c-\mathrm{i}\,d)^2\,\text{Log}[\text{Cos}[e+f\,x]]}{f}-\frac{a^2\,(c-\mathrm{i}\,d)^2\,\text{Tan}[e+f\,x]}{f}+\frac{c\,d\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^2}{f}-\frac{\mathrm{i}\,d^2\,(a+\mathrm{i}\,a\,\text{Tan}[e+f\,x])^3}{3\,a\,f}$$

Result (type 3, 261 leaves):

$$\frac{1}{f\,(\cos[f x]+i\,\sin[f x])^2}\Big((c-i d)^2 \cos[e+f x]^2 \,\mathrm{Log}\left[\cos[e+f x]^2\right](-i\cos[2 e]-\sin[2 e])+4\,(c-i d)^2 f x \cos[e+f x]^2\,(\cos[2 e]-i\sin[2 e])-2\,(c-i d)^2\,\mathrm{ArcTan}[\mathrm{Tan}[3 e+f x]]\cos[e+f x]^2\,(\cos[2 e]-i\sin[2 e])-\frac{1}{3}\left(3 c^2-12 i c d-7 d^2\right)\cos[e+f x]\,\mathrm{Sec}[e]\,(\cos[2 e]-i\sin[2 e])\sin[f x]-\frac{1}{3} d^2\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f x]\,(\cos[2 e]-i\sin[2 e])\sin[f x]-\frac{1}{3} d\,(\cos[2 e]-i\sin[2 e])\,(3 c-3 i d+d\,\mathrm{Tan}[e])\Big)(a+i a\,\mathrm{Tan}[e+f x])^2$$

- **Problem 1073: Result more than twice size of optimal antiderivative.**

$$\int (a+i a\,\mathrm{Tan}[e+f x])\,(c+d\,\mathrm{Tan}[e+f x])^2\,dx$$

Optimal (type 3, 78 leaves, 3 steps):

$$a\,(c-i d)^2 x-\frac{i a\,(c-i d)^2\,\mathrm{Log}[\cos[e+f x]]}{f}+\frac{a d\,(i c+d)\,\mathrm{Tan}[e+f x]}{f}+\frac{i a\,(c+d\,\mathrm{Tan}[e+f x])^2}{2 f}$$

Result (type 3, 175 leaves):

$$\frac{1}{2 f}(\cos[f x]-i\sin[f x])\Big(4\,(c-i d)^2 f x\cos[e+f x]\,(\cos[e]-i\sin[e])-2\,(c-i d)^2\,\mathrm{ArcTan}[\mathrm{Tan}[2 e+f x]]\cos[e+f x]\,(\cos[e]-i\sin[e])-i\,(c-i d)^2\cos[e+f x]\,\mathrm{Log}\left[\cos[e+f x]^2\right](\cos[e]-i\sin[e])+d^2\,\mathrm{Sec}[e+f x]\,(i\cos[e]+\sin[e])+2\,(2 c-i d)\,d\sin[f x]\,(i+\mathrm{Tan}[e])\Big)(a+i a\,\mathrm{Tan}[e+f x])$$

- **Problem 1074: Result more than twice size of optimal antiderivative.**

$$\int \frac{(c+d\,\mathrm{Tan}[e+f x])^2}{a+i a\,\mathrm{Tan}[e+f x]}\,dx$$

Optimal (type 3, 75 leaves, 3 steps):

$$\frac{\left(c^2-2 i c d+d^2\right) x}{2 a}+\frac{i d^2\,\mathrm{Log}[\cos[e+f x]]}{a f}+\frac{i\,(c+i d)^2}{2 f\,(a+i a\,\mathrm{Tan}[e+f x])}$$

Result (type 3, 155 leaves):

$$\frac{1}{4 a f\,(-i+\mathrm{Tan}[e+f x])}\Big(c^2+2 i c d-d^2-2 i c^2 f x-4 c d f x+2 i d^2 f x+2 d^2\,\mathrm{Log}\left[\cos[e+f x]^2\right]+\left(d^2\,(i-2 f x)+c^2\,(-i+2 f x)+2 c\,(d-2 i d f x)+2 i d^2\,\mathrm{Log}\left[\cos[e+f x]^2\right]\right)\mathrm{Tan}[e+f x]+4 d^2\,\mathrm{ArcTan}[\mathrm{Tan}[f x]]\,(-i+\mathrm{Tan}[e+f x])\Big)$$

- **Problem 1077: Result more than twice size of optimal antiderivative.**

$$\int (a+i a\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])^3\,dx$$

Optimal (type 3, 190 leaves, 6 steps):

$$4 a^3 (c - i d)^3 x + \frac{4 a^3 (i c + d)^3 \text{Log}[\text{Cos}[e + f x]]}{f} + \frac{4 i a^3 (c - i d)^2 d \,\text{Tan}[e + f x]}{f} + \frac{2 a^3 (i c + d) (c + d \,\text{Tan}[e + f x])^2}{f} + \frac{4 i a^3 (c + d \,\text{Tan}[e + f x])^3}{3 f} + \frac{a^3 (i c - 11 d) (c + d \,\text{Tan}[e + f x])^4}{20 d^2 f} - \frac{\left(a^3 + i a^3 \text{Tan}[e + f x]\right) (c + d \,\text{Tan}[e + f x])^4}{5 d f}$$

Result (type 3, 1564 leaves):

$$\frac{1}{f (\text{Cos}[f x] + i \,\text{Sin}[f x])^3} \text{Cos}[e + f x]^3 \left(-i c^3 \text{Cos}\left[\frac{3 e}{2}\right] - 3 c^2 d \,\text{Cos}\left[\frac{3 e}{2}\right] + 3 i c d^2 \text{Cos}\left[\frac{3 e}{2}\right] + d^3 \text{Cos}\left[\frac{3 e}{2}\right] - c^3 \text{Sin}\left[\frac{3 e}{2}\right] + 3 i c^2 d \,\text{Sin}\left[\frac{3 e}{2}\right] + 3 c d^2 \text{Sin}\left[\frac{3 e}{2}\right] - i d^3 \text{Sin}\left[\frac{3 e}{2}\right]\right)$$
$$\left(2 \,\text{Cos}\left[\frac{3 e}{2}\right] \text{Log}\left[\text{Cos}[e + f x]^2\right] - 2 i \,\text{Log}\left[\text{Cos}[e + f x]^2\right] \text{Sin}\left[\frac{3 e}{2}\right]\right) (a + i a \,\text{Tan}[e + f x])^3 +$$
$$\frac{1}{f (\text{Cos}[f x] + i \,\text{Sin}[f x])^3} \text{Sec}[e] \,\text{Sec}[e + f x]^2 \left(\frac{1}{240} \text{Cos}[3 e] - \frac{1}{240} i \,\text{Sin}[3 e]\right)$$
$$\left(-45 i c^3 \text{Cos}[f x] - 405 c^2 d \,\text{Cos}[f x] + 585 i c d^2 \text{Cos}[f x] + 225 d^3 \text{Cos}[f x] + 300 c^3 f x \,\text{Cos}[f x] - 900 i c^2 d f x \,\text{Cos}[f x] - \right.$$
$$900 c d^2 f x \,\text{Cos}[f x] + 300 i d^3 f x \,\text{Cos}[f x] - 45 i c^3 \text{Cos}[2 e + f x] - 405 c^2 d \,\text{Cos}[2 e + f x] + 585 i c d^2 \text{Cos}[2 e + f x] +$$
$$225 d^3 \text{Cos}[2 e + f x] + 300 c^3 f x \,\text{Cos}[2 e + f x] - 900 i c^2 d f x \,\text{Cos}[2 e + f x] - 900 c d^2 f x \,\text{Cos}[2 e + f x] + 300 i d^3 f x \,\text{Cos}[2 e + f x] -$$
$$15 i c^3 \text{Cos}[2 e + 3 f x] - 135 c^2 d \,\text{Cos}[2 e + 3 f x] + 225 i c d^2 \text{Cos}[2 e + 3 f x] + 105 d^3 \text{Cos}[2 e + 3 f x] + 150 c^3 f x \,\text{Cos}[2 e + 3 f x] -$$
$$450 i c^2 d f x \,\text{Cos}[2 e + 3 f x] - 450 c d^2 f x \,\text{Cos}[2 e + 3 f x] + 150 i d^3 f x \,\text{Cos}[2 e + 3 f x] - 15 i c^3 \text{Cos}[4 e + 3 f x] -$$
$$135 c^2 d \,\text{Cos}[4 e + 3 f x] + 225 i c d^2 \text{Cos}[4 e + 3 f x] + 105 d^3 \text{Cos}[4 e + 3 f x] + 150 c^3 f x \,\text{Cos}[4 e + 3 f x] - 450 i c^2 d f x \,\text{Cos}[4 e + 3 f x] -$$
$$450 c d^2 f x \,\text{Cos}[4 e + 3 f x] + 150 i d^3 f x \,\text{Cos}[4 e + 3 f x] + 30 c^3 f x \,\text{Cos}[4 e + 5 f x] - 90 i c^2 d f x \,\text{Cos}[4 e + 5 f x] - 90 c d^2 f x \,\text{Cos}[4 e + 5 f x] +$$
$$30 i d^3 f x \,\text{Cos}[4 e + 5 f x] + 30 c^3 f x \,\text{Cos}[6 e + 5 f x] - 90 i c^2 d f x \,\text{Cos}[6 e + 5 f x] - 90 c d^2 f x \,\text{Cos}[6 e + 5 f x] + 30 i d^3 f x \,\text{Cos}[6 e + 5 f x] -$$
$$270 c^3 \text{Sin}[f x] + 1140 i c^2 d \,\text{Sin}[f x] + 1260 c d^2 \text{Sin}[f x] - 470 i d^3 \text{Sin}[f x] + 180 c^3 \text{Sin}[2 e + f x] - 810 i c^2 d \,\text{Sin}[2 e + f x] -$$
$$990 c d^2 \text{Sin}[2 e + f x] + 360 i d^3 \text{Sin}[2 e + f x] - 180 c^3 \text{Sin}[2 e + 3 f x] + 750 i c^2 d \,\text{Sin}[2 e + 3 f x] + 810 c d^2 \text{Sin}[2 e + 3 f x] -$$
$$280 i d^3 \text{Sin}[2 e + 3 f x] + 45 c^3 \text{Sin}[4 e + 3 f x] - 225 i c^2 d \,\text{Sin}[4 e + 3 f x] - 315 c d^2 \text{Sin}[4 e + 3 f x] + 135 i d^3 \text{Sin}[4 e + 3 f x] -$$
$$\left. 45 c^3 \text{Sin}[4 e + 5 f x] + 195 i c^2 d \,\text{Sin}[4 e + 5 f x] + 225 c d^2 \text{Sin}[4 e + 5 f x] - 83 i d^3 \text{Sin}[4 e + 5 f x]\right) (a + i a \,\text{Tan}[e + f x])^3 +$$
$$\frac{1}{(\text{Cos}[f x] + i \,\text{Sin}[f x])^3} x \,\text{Cos}[e + f x]^3 \left(-2 c^3 \text{Cos}[e] + 6 i c^2 d \,\text{Cos}[e] + 6 c d^2 \text{Cos}[e] - 2 i d^3 \text{Cos}[e] + 2 c^3 \text{Cos}[e]^3 - 6 i c^2 d \,\text{Cos}[e]^3 - \right.$$
$$6 c d^2 \text{Cos}[e]^3 + 2 i d^3 \text{Cos}[e]^3 + 4 i c^3 \text{Sin}[e] + 12 c^2 d \,\text{Sin}[e] - 12 i c d^2 \text{Sin}[e] - 4 d^3 \text{Sin}[e] - 8 i c^3 \text{Cos}[e]^2 \text{Sin}[e] -$$
$$24 c^2 d \,\text{Cos}[e]^2 \text{Sin}[e] + 24 i c d^2 \text{Cos}[e]^2 \text{Sin}[e] + 8 d^3 \text{Cos}[e]^2 \text{Sin}[e] - 12 c^3 \text{Cos}[e] \,\text{Sin}[e]^2 + 36 i c^2 d \,\text{Cos}[e] \,\text{Sin}[e]^2 +$$
$$36 c d^2 \text{Cos}[e] \,\text{Sin}[e]^2 - 12 i d^3 \text{Cos}[e] \,\text{Sin}[e]^2 + 8 i c^3 \text{Sin}[e]^3 + 24 c^2 d \,\text{Sin}[e]^3 - 24 i c d^2 \text{Sin}[e]^3 - 8 d^3 \text{Sin}[e]^3 + 2 c^3 \text{Sin}[e] \,\text{Tan}[e] -$$
$$6 i c^2 d \,\text{Sin}[e] \,\text{Tan}[e] - 6 c d^2 \text{Sin}[e] \,\text{Tan}[e] + 2 i d^3 \text{Sin}[e] \,\text{Tan}[e] + 2 c^3 \text{Sin}[e]^3 \text{Tan}[e] - 6 i c^2 d \,\text{Sin}[e]^3 \text{Tan}[e] -$$
$$\left. 6 c d^2 \text{Sin}[e]^3 \text{Tan}[e] + 2 i d^3 \text{Sin}[e]^3 \text{Tan}[e] + (-i c - d)^3 (4 \,\text{Cos}[3 e] - 4 i \,\text{Sin}[3 e]) \,\text{Tan}[e]\right) (a + i a \,\text{Tan}[e + f x])^3$$

- **Problem 1078: Result more than twice size of optimal antiderivative.**

$$\int (a + i a \,\text{Tan}[e + f x])^2 (c + d \,\text{Tan}[e + f x])^3 \, dx$$

Optimal (type 3, 141 leaves, 5 steps):

$$2 a^2 (c - i d)^3 x + \frac{2 a^2 (i c + d)^3 \text{Log}[\text{Cos}[e + f x]]}{f} + \frac{2 i a^2 (c - i d)^2 d \text{Tan}[e + f x]}{f} + \frac{a^2 (i c + d) (c + d \text{Tan}[e + f x])^2}{f} + \frac{2 i a^2 (c + d \text{Tan}[e + f x])^3}{3 f} - \frac{a^2 (c + d \text{Tan}[e + f x])^4}{4 d f}$$

Result (type 3, 1225 leaves):

$$\frac{1}{f (\text{Cos}[f x] + i \text{Sin}[f x])^2} \text{Cos}[e + f x]^2 \left(-i c^3 \text{Cos}[e] - 3 c^2 d \text{Cos}[e] + 3 i c d^2 \text{Cos}[e] + d^3 \text{Cos}[e] - c^3 \text{Sin}[e] + 3 i c^2 d \text{Sin}[e] + 3 c d^2 \text{Sin}[e] - i d^3 \text{Sin}[e]\right) (-2 i \text{ArcTan}[\text{Tan}[3 e + f x]] \text{Cos}[e] - 2 \text{ArcTan}[\text{Tan}[3 e + f x]] \text{Sin}[e]) (a + i a \text{Tan}[e + f x])^2 + \frac{1}{f (\text{Cos}[f x] + i \text{Sin}[f x])^2} \text{Cos}[e + f x]^2 \left(-i c^3 \text{Cos}[e] - 3 c^2 d \text{Cos}[e] + 3 i c d^2 \text{Cos}[e] + d^3 \text{Cos}[e] - c^3 \text{Sin}[e] + 3 i c^2 d \text{Sin}[e] + 3 c d^2 \text{Sin}[e] - i d^3 \text{Sin}[e]\right) \left(\text{Cos}[e] \text{Log}\left[\text{Cos}[e + f x]^2\right] - i \text{Log}\left[\text{Cos}[e + f x]^2\right] \text{Sin}[e]\right) (a + i a \text{Tan}[e + f x])^2 + \frac{1}{f (\text{Cos}[f x] + i \text{Sin}[f x])^2} \text{Sec}[e] \text{Sec}[e + f x]^2 \left(\frac{1}{24} \text{Cos}[2 e] - \frac{1}{24} i \text{Sin}[2 e]\right) \left(-18 c^2 d \text{Cos}[e] + 36 i c d^2 \text{Cos}[e] + 12 d^3 \text{Cos}[e] + 18 c^3 f x \text{Cos}[e] - 54 i c^2 d f x \text{Cos}[e] - 54 c d^2 f x \text{Cos}[e] + 18 i d^3 f x \text{Cos}[e] - 9 c^2 d \text{Cos}[e + 2 f x] + 18 i c d^2 \text{Cos}[e + 2 f x] + 9 d^3 \text{Cos}[e + 2 f x] + 12 c^3 f x \text{Cos}[e + 2 f x] - 36 i c^2 d f x \text{Cos}[e + 2 f x] - 36 c d^2 f x \text{Cos}[e + 2 f x] + 12 i d^3 f x \text{Cos}[e + 2 f x] - 9 c^2 d \text{Cos}[3 e + 2 f x] + 18 i c d^2 \text{Cos}[3 e + 2 f x] + 9 d^3 \text{Cos}[3 e + 2 f x] + 12 c^3 f x \text{Cos}[3 e + 2 f x] - 36 i c^2 d f x \text{Cos}[3 e + 2 f x] - 36 c d^2 f x \text{Cos}[3 e + 2 f x] + 12 i d^3 f x \text{Cos}[3 e + 2 f x] + 3 c^3 f x \text{Cos}[3 e + 4 f x] - 9 i c^2 d f x \text{Cos}[3 e + 4 f x] - 9 c d^2 f x \text{Cos}[3 e + 4 f x] + 3 i d^3 f x \text{Cos}[3 e + 4 f x] + 3 c^3 f x \text{Cos}[5 e + 4 f x] - 9 i c^2 d f x \text{Cos}[5 e + 4 f x] - 9 c d^2 f x \text{Cos}[5 e + 4 f x] + 3 i d^3 f x \text{Cos}[5 e + 4 f x] + 9 c^3 \text{Sin}[e] - 54 i c^2 d \text{Sin}[e] - 63 c d^2 \text{Sin}[e] + 24 i d^3 \text{Sin}[e] - 9 c^3 \text{Sin}[e + 2 f x] + 54 i c^2 d \text{Sin}[e + 2 f x] + 57 c d^2 \text{Sin}[e + 2 f x] - 20 i d^3 \text{Sin}[e + 2 f x] + 3 c^3 \text{Sin}[3 e + 2 f x] - 18 i c^2 d \text{Sin}[3 e + 2 f x] - 27 c d^2 \text{Sin}[3 e + 2 f x] + 12 i d^3 \text{Sin}[3 e + 2 f x] - 3 c^3 \text{Sin}[3 e + 4 f x] + 18 i c^2 d \text{Sin}[3 e + 4 f x] + 21 c d^2 \text{Sin}[3 e + 4 f x] - 8 i d^3 \text{Sin}[3 e + 4 f x]\right) (a + i a \text{Tan}[e + f x])^2 + \frac{1}{(\text{Cos}[f x] + i \text{Sin}[f x])^2} x \text{Cos}[e + f x]^2 \left(2 c^3 \text{Cos}[e]^2 - 6 i c^2 d \text{Cos}[e]^2 - 6 c d^2 \text{Cos}[e]^2 + 2 i d^3 \text{Cos}[e]^2 - 6 i c^3 \text{Cos}[e] \text{Sin}[e] - 18 c^2 d \text{Cos}[e] \text{Sin}[e] + 18 i c d^2 \text{Cos}[e] \text{Sin}[e] + 6 d^3 \text{Cos}[e] \text{Sin}[e] - 6 c^3 \text{Sin}[e]^2 + 18 i c^2 d \text{Sin}[e]^2 + 18 c d^2 \text{Sin}[e]^2 - 6 i d^3 \text{Sin}[e]^2 + 2 i c^3 \text{Sin}[e]^2 \text{Tan}[e] + 6 c^2 d \text{Sin}[e]^2 \text{Tan}[e] - 6 i c d^2 \text{Sin}[e]^2 \text{Tan}[e] - 2 d^3 \text{Sin}[e]^2 \text{Tan}[e] + (-i c - d)^3 (2 \text{Cos}[2 e] - 2 i \text{Sin}[2 e]) \text{Tan}[e]\right) (a + i a \text{Tan}[e + f x])^2$$

■ Problem 1079: Result more than twice size of optimal antiderivative.

$$\int (a + i a \text{Tan}[e + f x]) (c + d \text{Tan}[e + f x])^3 \, dx$$

Optimal (type 3, 107 leaves, 4 steps):

$$a (c - i d)^3 x + \frac{a (i c + d)^3 \text{Log}[\text{Cos}[e + f x]]}{f} + \frac{i a (c - i d)^2 d \text{Tan}[e + f x]}{f} + \frac{a (i c + d) (c + d \text{Tan}[e + f x])^2}{2 f} + \frac{i a (c + d \text{Tan}[e + f x])^3}{3 f}$$

Result (type 3, 219 leaves):

$$\frac{1}{6f}(\text{Cos}[f x]-i\,\text{Sin}[f x])\,\Big(12(c-i d)^3 f x\,\text{Cos}[e+f x](\text{Cos}[e]-i\,\text{Sin}[e])-6(c-i d)^3\,\text{ArcTan}[\text{Tan}[2 e+f x]]\,\text{Cos}[e+f x](\text{Cos}[e]-i\,\text{Sin}[e])-3 i(c-i d)^3\,\text{Cos}[e+f x]\,\text{Log}\big[\text{Cos}[e+f x]^2\big](\text{Cos}[e]-i\,\text{Sin}[e])-2 d\left(-9 c^2+9 i c d+4 d^2\right)\text{Sin}[f x](i+\text{Tan}[e])+2 d^3\,\text{Sec}[e+f x]^2\,\text{Sin}[f x](i+\text{Tan}[e])+d^2\,\text{Cos}[e]\,\text{Sec}[e+f x](i+\text{Tan}[e])(9 c-3 i d+2 d\,\text{Tan}[e])\Big)(a+i a\,\text{Tan}[e+f x])$$

Problem 1081: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d\,\text{Tan}[e+f x])^3}{(a+i a\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 136 leaves, 5 steps):

$$\frac{\left(c^3-3 i c^2 d-3 c d^2-3 i d^3\right)x}{4 a^2}+\frac{d^3\,\text{Log}[\text{Cos}[e+f x]]}{a^2 f}+\frac{(c+i d)^2(i c+3 d)}{4 a^2 f(1+i\,\text{Tan}[e+f x])}+\frac{(i c-d)(c+d\,\text{Tan}[e+f x])^2}{4 f(a+i a\,\text{Tan}[e+f x])^2}$$

Result (type 3, 305 leaves):

$$-\frac{1}{16 a^2 f(-i+\text{Tan}[e+f x])^2}\text{Sec}[e+f x]^2\Big(4 i c^3+12 i c d^2-8 d^3+\text{Cos}[2(e+f x)]\left(3 c^2 d(-1-4 i f x)+d^3(1+4 i f x)+c^3(i+4 f x)-3 c d^2(i+4 f x)+8 d^3\,\text{Log}\big[\text{Cos}[e+f x]^2\big]\right)+c^3\,\text{Sin}[2(e+f x)]+3 i c^2 d\,\text{Sin}[2(e+f x)]-3 c d^2\,\text{Sin}[2(e+f x)]-i d^3\,\text{Sin}[2(e+f x)]+4 i c^3 f x\,\text{Sin}[2(e+f x)]+12 c^2 d f x\,\text{Sin}[2(e+f x)]-12 i c d^2 f x\,\text{Sin}[2(e+f x)]-4 d^3 f x\,\text{Sin}[2(e+f x)]+8 i d^3\,\text{Log}\big[\text{Cos}[e+f x]^2\big]\,\text{Sin}[2(e+f x)]+16 d^3\,\text{ArcTan}[\text{Tan}[f x]](-i\,\text{Cos}[2(e+f x)]+\text{Sin}[2(e+f x)])\Big)$$

Problem 1083: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i a\,\text{Tan}[e+f x])^3}{c+d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 115 leaves, 5 steps):

$$\frac{4 a^3 x}{c-i d}-\frac{a^3(i c-3 d)\,\text{Log}[\text{Cos}[e+f x]]}{d^2 f}-\frac{a^3(c+i d)^2\,\text{Log}[c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]]}{d^2(i c+d) f}-\frac{a^3+i a^3\,\text{Tan}[e+f x]}{d f}$$

Result (type 3, 2264 leaves):

$$\left(\text{Cos}[e+f x]^2\left(c^2\,\text{Cos}\left[\frac{3 e}{2}\right]+2 i c d\,\text{Cos}\left[\frac{3 e}{2}\right]-d^2\,\text{Cos}\left[\frac{3 e}{2}\right]-i c^2\,\text{Sin}\left[\frac{3 e}{2}\right]+2 c d\,\text{Sin}\left[\frac{3 e}{2}\right]+i d^2\,\text{Sin}\left[\frac{3 e}{2}\right]\right)\left(\frac{i\,\text{Cos}\left[\frac{3 e}{2}\right]\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right]}{2 d^2}+\frac{\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right]\text{Sin}\left[\frac{3 e}{2}\right]}{2 d^2}\right)(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])(a+i a\,\text{Tan}[e+f x])^3\right)\Big/\Big((c-i d) f(\text{Cos}[f x]+i\,\text{Sin}[f x])^3(c+d\,\text{Tan}[e+f x])\Big)+$$

$$\frac{\text{Cos}[e+f x]^2(4 f x\,\text{Cos}[3 e]-4 i f x\,\text{Sin}[3 e])(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])(a+i a\,\text{Tan}[e+f x])^3}{(c-i d) f(\text{Cos}[f x]+i\,\text{Sin}[f x])^3(c+d\,\text{Tan}[e+f x])}+$$

$$\left((-i c+3 d) \cos[e+f x]^2 \left(\frac{\cos[3 e] \log\left[\cos[e+f x]^2\right]}{2 d^2}-\frac{i \log\left[\cos[e+f x]^2\right] \sin[3 e]}{2 d^2}\right) (c \cos[e+f x]+d \sin[e+f x]) (a+i a \tan[e+f x])^3\right) \Big/$$

$$\Big(f (\cos[f x]+i \sin[f x])^3 (c+d \tan[e+f x])\Big) -$$

$$\frac{i \cos[e+f x] \left(\frac{\cos[3 e]}{d}-\frac{i \sin[3 e]}{d}\right) \sin[f x] (c \cos[e+f x]+d \sin[e+f x]) (a+i a \tan[e+f x])^3}{f \left(\cos\left[\frac{e}{2}\right]-\sin\left[\frac{e}{2}\right]\right) \left(\cos\left[\frac{e}{2}\right]+\sin\left[\frac{e}{2}\right]\right) (\cos[f x]+i \sin[f x])^3 (c+d \tan[e+f x])}+$$

$$\frac{1}{(\cos[f x]+i \sin[f x])^3 (c+d \tan[e+f x])} x \cos[e+f x]^2 (c \cos[e+f x]+d \sin[e+f x])$$

$$\left(-\frac{c \cos[e]}{2 d^2}-\frac{3 i \cos[e]}{2 d}+\frac{c \cos[e]^3}{2 d^2}+\frac{3 i \cos[e]^3}{2 d}+\frac{i c \sin[e]}{d^2}-\frac{3 \sin[e]}{d}-\frac{2 i c \cos[e]^2 \sin[e]}{d^2}+\frac{6 \cos[e]^2 \sin[e]}{d}-\frac{3 c \cos[e] \sin[e]^2}{d^2}-\right.$$

$$\frac{9 i \cos[e] \sin[e]^2}{d}+\frac{2 i c \sin[e]^3}{d^2}-\frac{6 \sin[e]^3}{d}+\frac{c \cos[e]^2}{2 (c-i d) (c \cos[e]+d \sin[e])}+\frac{c^3 \cos[e]^2}{2 (c-i d) d^2 (c \cos[e]+d \sin[e])}+$$

$$\frac{i c^2 \cos[e]^2}{2 (c-i d) d (c \cos[e]+d \sin[e])}+\frac{i d \cos[e]^2}{2 (c-i d) (c \cos[e]+d \sin[e])}+\frac{3 c \cos[e]^4}{2 (c-i d) (c \cos[e]+d \sin[e])}-$$

$$\frac{c^3 \cos[e]^4}{2 (c-i d) d^2 (c \cos[e]+d \sin[e])}-\frac{3 i c^2 \cos[e]^4}{2 (c-i d) d (c \cos[e]+d \sin[e])}+\frac{i d \cos[e]^4}{2 (c-i d) (c \cos[e]+d \sin[e])}-\frac{i c \cos[e] \sin[e]}{(c-i d) (c \cos[e]+d \sin[e])}-$$

$$\frac{i c^3 \cos[e] \sin[e]}{(c-i d) d^2 (c \cos[e]+d \sin[e])}+\frac{c^2 \cos[e] \sin[e]}{(c-i d) d (c \cos[e]+d \sin[e])}+\frac{d \cos[e] \sin[e]}{(c-i d) (c \cos[e]+d \sin[e])}-\frac{6 i c \cos[e]^3 \sin[e]}{(c-i d) (c \cos[e]+d \sin[e])}+$$

$$\frac{2 i c^3 \cos[e]^3 \sin[e]}{(c-i d) d^2 (c \cos[e]+d \sin[e])}-\frac{6 c^2 \cos[e]^3 \sin[e]}{(c-i d) d (c \cos[e]+d \sin[e])}+\frac{2 d \cos[e]^3 \sin[e]}{(c-i d) (c \cos[e]+d \sin[e])}-\frac{c \sin[e]^2}{2 (c-i d) (c \cos[e]+d \sin[e])}-$$

$$\frac{c^3 \sin[e]^2}{2 (c-i d) d^2 (c \cos[e]+d \sin[e])}-\frac{i c^2 \sin[e]^2}{2 (c-i d) d (c \cos[e]+d \sin[e])}-\frac{i d \sin[e]^2}{2 (c-i d) (c \cos[e]+d \sin[e])}-$$

$$\frac{9 c \cos[e]^2 \sin[e]^2}{(c-i d) (c \cos[e]+d \sin[e])}+\frac{3 c^3 \cos[e]^2 \sin[e]^2}{(c-i d) d^2 (c \cos[e]+d \sin[e])}+\frac{9 i c^2 \cos[e]^2 \sin[e]^2}{(c-i d) d (c \cos[e]+d \sin[e])}-\frac{3 i d \cos[e]^2 \sin[e]^2}{(c-i d) (c \cos[e]+d \sin[e])}+$$

$$\frac{6 i c \cos[e] \sin[e]^3}{(c-i d) (c \cos[e]+d \sin[e])}-\frac{2 i c^3 \cos[e] \sin[e]^3}{(c-i d) d^2 (c \cos[e]+d \sin[e])}+\frac{6 c^2 \cos[e] \sin[e]^3}{(c-i d) d (c \cos[e]+d \sin[e])}-\frac{2 d \cos[e] \sin[e]^3}{(c-i d) (c \cos[e]+d \sin[e])}+$$

$$\frac{3 c \sin[e]^4}{2 (c-i d) (c \cos[e]+d \sin[e])}-\frac{c^3 \sin[e]^4}{2 (c-i d) d^2 (c \cos[e]+d \sin[e])}-\frac{3 i c^2 \sin[e]^4}{2 (c-i d) d (c \cos[e]+d \sin[e])}+$$

$$\frac{i d \sin[e]^4}{2 (c-i d) (c \cos[e]+d \sin[e])}+\frac{(-3 c-i d-c \cos[2 e]-i d \cos[2 e]-i c \sin[2 e]+d \sin[2 e]) (\cos[3 e]-i \sin[3 e])}{(c-i d) (c+i d+c \cos[2 e]-i d \cos[2 e]+i c \sin[2 e]+d \sin[2 e])}+$$

$$\frac{(-c+c \cos[2 e]+i c \sin[2 e]) \left(\frac{\cos[3 e]}{d^2}-\frac{i \sin[3 e]}{d^2}\right)}{1+\cos[2 e]+i \sin[2 e]}+\frac{\left(c^3-c^3 \cos[2 e]-i c^3 \sin[2 e]\right) \left(\frac{\cos[3 e]}{d^2}-\frac{i \sin[3 e]}{d^2}\right)}{(c-i d) (c+i d+c \cos[2 e]-i d \cos[2 e]+i c \sin[2 e]+d \sin[2 e])}+$$

$$\frac{\left(-3 c^2+c^2 \operatorname{Cos}[2 e]+i c^2 \operatorname{Sin}[2 e]\right)\left(-\frac{i \operatorname{Cos}[3 e]}{d}-\frac{\operatorname{Sin}[3 e]}{d}\right)}{(c-i d)(c+i d+c \operatorname{Cos}[2 e]-i d \operatorname{Cos}[2 e]+i c \operatorname{Sin}[2 e]+d \operatorname{Sin}[2 e])}+\frac{(-1+\operatorname{Cos}[2 e]+i \operatorname{Sin}[2 e])\left(\frac{3 i \operatorname{Cos}[3 e]}{d}+\frac{3 \operatorname{Sin}[3 e]}{d}\right)}{1+\operatorname{Cos}[2 e]+i \operatorname{Sin}[2 e]}+$$
$$\left.\frac{c \operatorname{Sin}[e] \operatorname{Tan}[e]}{2 d^2}+\frac{3 i \operatorname{Sin}[e] \operatorname{Tan}[e]}{2 d}+\frac{c \operatorname{Sin}[e]^3 \operatorname{Tan}[e]}{2 d^2}+\frac{3 i \operatorname{Sin}[e]^3 \operatorname{Tan}[e]}{2 d}\right)(a+i a \operatorname{Tan}[e+f x])^3$$

- **Problem 1085: Result more than twice size of optimal antiderivative.**

$$\int \frac{a+i a \operatorname{Tan}[e+f x]}{c+d \operatorname{Tan}[e+f x]} d x$$

Optimal (type 3, 45 leaves, 2 steps):

$$\frac{a x}{c-i d}+\frac{a \operatorname{Log}[c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]]}{(i c+d) f}$$

Result (type 3, 95 leaves):

$$\frac{4 a f x+2 a \operatorname{ArcTan}\left[\frac{d \operatorname{Cos}[2 e+f x]-c \operatorname{Sin}[2 e+f x]}{c \operatorname{Cos}[2 e+f x]+d \operatorname{Sin}[2 e+f x]}\right]-i a \operatorname{Log}\left[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right]}{2 c f-2 i d f}$$

- **Problem 1087: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+i a \operatorname{Tan}[e+f x])^2(c+d \operatorname{Tan}[e+f x])} d x$$

Optimal (type 3, 174 leaves, 4 steps):

$$\frac{\left(c^3+3 i c^2 d-3 c d^2+3 i d^3\right) x}{4 a^2(c-i d)(c+i d)^3}-\frac{d^3 \operatorname{Log}[c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]]}{a^2(c-i d)(c+i d)^3 f}+\frac{i c-3 d}{4 a^2(c+i d)^2 f(1+i \operatorname{Tan}[e+f x])}-\frac{1}{4(i c-d) f(a+i a \operatorname{Tan}[e+f x])^2}$$

Result (type 3, 372 leaves):

$$-\frac{1}{16 a^2(c-i d)(c+i d)^3 f(-i+\operatorname{Tan}[e+f x])^2}$$
$$\operatorname{Sec}[e+f x]^2\left(4 i c^3-8 c^2 d+4 i c d^2-8 d^3+\operatorname{Cos}[2(e+f x)]\left((c+i d)^2(i c+d+4 c f x+4 i d f x)-8 d^3 \operatorname{Log}\left[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right]\right)+\right.$$
$$c^3 \operatorname{Sin}[2(e+f x)]+i c^2 d \operatorname{Sin}[2(e+f x)]+c d^2 \operatorname{Sin}[2(e+f x)]+i d^3 \operatorname{Sin}[2(e+f x)]+4 i c^3 f x \operatorname{Sin}[2(e+f x)]-$$
$$12 c^2 d f x \operatorname{Sin}[2(e+f x)]-12 i c d^2 f x \operatorname{Sin}[2(e+f x)]+4 d^3 f x \operatorname{Sin}[2(e+f x)]-8 i d^3 \operatorname{Log}\left[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right]$$
$$\left.\operatorname{Sin}[2(e+f x)]+16 d^3 \operatorname{ArcTan}\left[\frac{-2 c d \operatorname{Cos}[f x]+\left(-c^2+d^2\right) \operatorname{Sin}[f x]}{\left(c^2-d^2\right) \operatorname{Cos}[f x]-2 c d \operatorname{Sin}[f x]}\right](-i \operatorname{Cos}[2(e+f x)]+\operatorname{Sin}[2(e+f x)])\right)$$

- **Problem 1089: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \operatorname{Tan}[e+f x])^3}{(c+d \operatorname{Tan}[e+f x])^2} d x$$

Optimal (type 3, 142 leaves, 5 steps):

$$\frac{4 a^3 x}{(c - i d)^2} + \frac{i a^3 \operatorname{Log}[\operatorname{Cos}[e + f x]]}{d^2 f} - \frac{a^3 (i c - d) (c - 3 i d) \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(c - i d)^2 d^2 f} + \frac{(c + i d) \left(a^3 + i a^3 \operatorname{Tan}[e + f x]\right)}{(c - i d) d f (c + d \operatorname{Tan}[e + f x])}$$

Result (type 3, 1936 leaves):

$$\frac{i \operatorname{Cos}[3 e] \operatorname{Cos}[e + f x]^3 \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] (a + i a \operatorname{Tan}[e + f x])^3}{2 d^2 f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3} +$$

$$\left(\operatorname{Cos}[e + f x]^3 \left(c^2 \operatorname{Cos}\left[\frac{3 e}{2}\right] - 2 i c d \operatorname{Cos}\left[\frac{3 e}{2}\right] + 3 d^2 \operatorname{Cos}\left[\frac{3 e}{2}\right] - i c^2 \operatorname{Sin}\left[\frac{3 e}{2}\right] - 2 c d \operatorname{Sin}\left[\frac{3 e}{2}\right] - 3 i d^2 \operatorname{Sin}\left[\frac{3 e}{2}\right]\right)\right.$$

$$\left(\frac{\operatorname{ArcTan}\left[\frac{2 c d \operatorname{Cos}[4 e+f x]-c^2 \operatorname{Sin}[4 e+f x]+d^2 \operatorname{Sin}[4 e+f x]}{c^2 \operatorname{Cos}[4 e+f x]-d^2 \operatorname{Cos}[4 e+f x]+2 c d \operatorname{Sin}[4 e+f x]}\right] \operatorname{Cos}\left[\frac{3 e}{2}\right]}{d^2} - \frac{i \operatorname{ArcTan}\left[\frac{2 c d \operatorname{Cos}[4 e+f x]-c^2 \operatorname{Sin}[4 e+f x]+d^2 \operatorname{Sin}[4 e+f x]}{c^2 \operatorname{Cos}[4 e+f x]-d^2 \operatorname{Cos}[4 e+f x]+2 c d \operatorname{Sin}[4 e+f x]}\right] \operatorname{Sin}\left[\frac{3 e}{2}\right]}{d^2}\right)$$

$$\left.(a + i a \operatorname{Tan}[e + f x])^3\right) \Big/ \left((c - i d)^2 f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3\right) +$$

$$\left(\operatorname{Cos}[e + f x]^3 \left(c^2 \operatorname{Cos}\left[\frac{3 e}{2}\right] - 2 i c d \operatorname{Cos}\left[\frac{3 e}{2}\right] + 3 d^2 \operatorname{Cos}\left[\frac{3 e}{2}\right] - i c^2 \operatorname{Sin}\left[\frac{3 e}{2}\right] - 2 c d \operatorname{Sin}\left[\frac{3 e}{2}\right] - 3 i d^2 \operatorname{Sin}\left[\frac{3 e}{2}\right]\right)\right.$$

$$\left.\left(-\frac{i \operatorname{Cos}\left[\frac{3 e}{2}\right] \operatorname{Log}\left[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\right]}{2 d^2} - \frac{\operatorname{Log}\left[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\right] \operatorname{Sin}\left[\frac{3 e}{2}\right]}{2 d^2}\right) (a + i a \operatorname{Tan}[e + f x])^3\right) \Big/$$

$$\left((c - i d)^2 f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3\right) + \frac{\operatorname{Cos}[e + f x]^3 \operatorname{Log}\left[\operatorname{Cos}[e + f x]^2\right] \operatorname{Sin}[3 e] (a + i a \operatorname{Tan}[e + f x])^3}{2 d^2 f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3} +$$

$$\frac{\operatorname{Cos}[e + f x]^3 (4 f x \operatorname{Cos}[3 e] - 4 i f x \operatorname{Sin}[3 e]) (a + i a \operatorname{Tan}[e + f x])^3}{(c - i d)^2 f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3} +$$

$$\frac{\operatorname{Cos}[e + f x]^3 \left(\frac{\operatorname{Cos}[3 e]}{d} - \frac{i \operatorname{Sin}[3 e]}{d}\right) \left(i c^2 \operatorname{Sin}[f x] - 2 c d \operatorname{Sin}[f x] - i d^2 \operatorname{Sin}[f x]\right) (a + i a \operatorname{Tan}[e + f x])^3}{(c - i d) f (c \operatorname{Cos}[e] + d \operatorname{Sin}[e]) (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])} +$$

$$\frac{1}{(\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3} x \operatorname{Cos}[e + f x]^3 \left(\frac{\operatorname{Cos}[e]}{2 d^2} - \frac{\operatorname{Cos}[e]^3}{2 d^2} - \frac{i \operatorname{Sin}[e]}{d^2} + \frac{2 i \operatorname{Cos}[e]^2 \operatorname{Sin}[e]}{d^2} + \frac{3 \operatorname{Cos}[e] \operatorname{Sin}[e]^2}{d^2} -\right.$$

$$\frac{2 i \operatorname{Sin}[e]^3}{d^2} + \frac{5 c \operatorname{Cos}[e]^4}{(c - i d)^2 (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} + \frac{c^3 \operatorname{Cos}[e]^4}{(c - i d)^2 d^2 (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} - \frac{i c^2 \operatorname{Cos}[e]^4}{(c - i d)^2 d (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} +$$

$$\frac{3 i d \operatorname{Cos}[e]^4}{(c - i d)^2 (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} - \frac{20 i c \operatorname{Cos}[e]^3 \operatorname{Sin}[e]}{(c - i d)^2 (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} - \frac{4 i c^3 \operatorname{Cos}[e]^3 \operatorname{Sin}[e]}{(c - i d)^2 d^2 (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} - \frac{4 c^2 \operatorname{Cos}[e]^3 \operatorname{Sin}[e]}{(c - i d)^2 d (c \operatorname{Cos}[e] + d \operatorname{Sin}[e])} +$$

$$\frac{12\,d\,\mathrm{Cos}[e]^3\,\mathrm{Sin}[e]}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-\frac{30\,c\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^2}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-\frac{6\,c^3\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^2}{(c-i\,d)^2\,d^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{6\,i\,c^2\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^2}{(c-i\,d)^2\,d\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-$$

$$\frac{18\,i\,d\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]^2}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{20\,i\,c\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^3}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{4\,i\,c^3\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^3}{(c-i\,d)^2\,d^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{4\,c^2\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^3}{(c-i\,d)^2\,d\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-$$

$$\frac{12\,d\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^3}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{5\,c\,\mathrm{Sin}[e]^4}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{c^3\,\mathrm{Sin}[e]^4}{(c-i\,d)^2\,d^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-\frac{i\,c^2\,\mathrm{Sin}[e]^4}{(c-i\,d)^2\,d\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+$$

$$\frac{3\,i\,d\,\mathrm{Sin}[e]^4}{(c-i\,d)^2\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{(-5\,c-3\,i\,d+c\,\mathrm{Cos}[2\,e]-3\,i\,d\,\mathrm{Cos}[2\,e]+i\,c\,\mathrm{Sin}[2\,e]+3\,d\,\mathrm{Sin}[2\,e])\,(\mathrm{Cos}[3\,e]-i\,\mathrm{Sin}[3\,e])}{(c-i\,d)^2\,(c+i\,d+c\,\mathrm{Cos}[2\,e]-i\,d\,\mathrm{Cos}[2\,e]+i\,c\,\mathrm{Sin}[2\,e]+d\,\mathrm{Sin}[2\,e])}+$$

$$\frac{(1-\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])\left(\frac{\mathrm{Cos}[3\,e]}{d^2}-\frac{i\,\mathrm{Sin}[3\,e]}{d^2}\right)}{1+\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e]}+\frac{\left(-c^3+c^3\,\mathrm{Cos}[2\,e]+i\,c^3\,\mathrm{Sin}[2\,e]\right)\left(\frac{\mathrm{Cos}[3\,e]}{d^2}-\frac{i\,\mathrm{Sin}[3\,e]}{d^2}\right)}{(c-i\,d)^2\,(c+i\,d+c\,\mathrm{Cos}[2\,e]-i\,d\,\mathrm{Cos}[2\,e]+i\,c\,\mathrm{Sin}[2\,e]+d\,\mathrm{Sin}[2\,e])}+$$

$$\left.\frac{\left(-c^2+3\,c^2\,\mathrm{Cos}[2\,e]+3\,i\,c^2\,\mathrm{Sin}[2\,e]\right)\left(-\frac{i\,\mathrm{Cos}[3\,e]}{d}-\frac{\mathrm{Sin}[3\,e]}{d}\right)}{(c-i\,d)^2\,(c+i\,d+c\,\mathrm{Cos}[2\,e]-i\,d\,\mathrm{Cos}[2\,e]+i\,c\,\mathrm{Sin}[2\,e]+d\,\mathrm{Sin}[2\,e])}-\frac{\mathrm{Sin}[e]\,\mathrm{Tan}[e]}{2\,d^2}-\frac{\mathrm{Sin}[e]^3\,\mathrm{Tan}[e]}{2\,d^2}\right)(a+i\,a\,\mathrm{Tan}[e+f\,x])^3$$

Problem 1090: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}{(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 93 leaves, 3 steps):

$$\frac{2\,a^2\,x}{(c-i\,d)^2}-\frac{2\,i\,a^2\,\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]}{(c-i\,d)^2\,f}+\frac{a^2\,(i\,c-d)}{d\,(i\,c+d)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 253 leaves):

$$\left(a^2\,(\mathrm{Cos}[e+f\,x]+i\,\mathrm{Sin}[e+f\,x])^2\left(\frac{\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\,(-i\,\mathrm{Cos}[2\,e]-\mathrm{Sin}[2\,e])}{f}+\right.\right.$$

$$4\,x\,(\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])+\frac{2\,\mathrm{ArcTan}\left[\frac{2\,c\,d\,\mathrm{Cos}[3\,e+f\,x]+\left(-c^2+d^2\right)\mathrm{Sin}[3\,e+f\,x]}{\left(c^2-d^2\right)\mathrm{Cos}[3\,e+f\,x]+2\,c\,d\,\mathrm{Sin}[3\,e+f\,x]}\right](\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])}{f}-$$

$$\left.\left.\frac{(c-i\,d)\,(c+i\,d)\,(\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])\,\mathrm{Sin}[f\,x]}{f\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\right)\right)\Big/\left((c-i\,d)^2\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2\right)$$

Problem 1091: Result more than twice size of optimal antiderivative.

$$\int \frac{a+i\,a\,\mathrm{Tan}[e+f\,x]}{(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 75 leaves, 3 steps):

$$\frac{a\,x}{(c-i\,d)^2}-\frac{i\,a\,\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]}{(c-i\,d)^2\,f}-\frac{a}{(i\,c+d)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 302 leaves) :

$$\frac{1}{4\,(c-i\,d)^2\,f}\mathrm{Cos}[e+f\,x]\,(\mathrm{Cos}[e]-i\,\mathrm{Sin}[e])\,(\mathrm{Cos}[f\,x]-i\,\mathrm{Sin}[f\,x])\,\left(4\,\mathrm{ArcTan}\left[\frac{2\,c\,d\,\mathrm{Cos}[2\,e+f\,x]+\left(-c^2+d^2\right)\,\mathrm{Sin}[2\,e+f\,x]}{\left(c^2-d^2\right)\,\mathrm{Cos}[2\,e+f\,x]+2\,c\,d\,\mathrm{Sin}[2\,e+f\,x]}\right]+\right.$$
$$\left(\left(c^2+d^2\right)\,\mathrm{Cos}[f\,x]\,\left(4\,f\,x-i\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\right)+\left(c^2-d^2\right)\,\mathrm{Cos}[2\,e+f\,x]\,\left(4\,f\,x-i\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\right)-\right.$$
$$\left.2\,d\,\left(2\,(i\,c+d)\,\mathrm{Sin}[f\,x]+c\,\left(-4\,f\,x+i\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\right)\,\mathrm{Sin}[2\,e+f\,x]\right)\right)\Big/$$
$$\left.((c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]))\right)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])$$

Problem 1094: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 357 leaves, 6 steps) :

$$\frac{\left(c^5+5\,i\,c^4\,d-10\,c^3\,d^2-10\,i\,c^2\,d^3-35\,c\,d^4+25\,i\,d^5\right)\,x}{8\,a^3\,(c-i\,d)^2\,(c+i\,d)^5}+\frac{(5\,c-3\,i\,d)\,d^4\,\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]}{a^3\,(i\,c-d)^5\,(c-i\,d)^2\,f}+$$
$$\frac{d\,\left(c^3+5\,i\,c^2\,d-11\,c\,d^2+25\,i\,d^3\right)}{8\,a^3\,(c-i\,d)\,(c+i\,d)^4\,f\,(c+d\,\mathrm{Tan}[e+f\,x])}-\frac{1}{6\,(i\,c-d)\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])}+$$
$$\frac{3\,i\,c-11\,d}{24\,a\,(c+i\,d)^2\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])}+\frac{c^2+5\,i\,c\,d-12\,d^2}{8\,(i\,c-d)^3\,f\,\left(a^3+i\,a^3\,\mathrm{Tan}[e+f\,x]\right)\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 1584 leaves) :

$$\frac{\left(3\,c^2+14\,i\,c\,d-23\,d^2\right)\,\mathrm{Cos}[2\,f\,x]\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{1}{16}\,i\,\mathrm{Cos}[e]-\frac{\mathrm{Sin}[e]}{16}\right)\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3}{(c+i\,d)^4\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\frac{(3\,c+7\,i\,d)\,\mathrm{Cos}[4\,f\,x]\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{1}{32}\,i\,\mathrm{Cos}[e]+\frac{\mathrm{Sin}[e]}{32}\right)\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3}{(c+i\,d)^3\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\left(\mathrm{Sec}[e+f\,x]^3\,\left(5\,c\,d^4\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]-3\,i\,d^5\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]+5\,i\,c\,d^4\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]+3\,d^5\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\right.$$
$$\left(\mathrm{ArcTan}\left[\frac{-3\,c^2\,d\,\mathrm{Cos}[f\,x]+d^3\,\mathrm{Cos}[f\,x]-c^3\,\mathrm{Sin}[f\,x]+3\,c\,d^2\,\mathrm{Sin}[f\,x]}{c^3\,\mathrm{Cos}[f\,x]-3\,c\,d^2\,\mathrm{Cos}[f\,x]-3\,c^2\,d\,\mathrm{Sin}[f\,x]+d^3\,\mathrm{Sin}[f\,x]}\right]\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]+\right.$$
$$\left.\left.i\,\mathrm{ArcTan}\left[\frac{-3\,c^2\,d\,\mathrm{Cos}[f\,x]+d^3\,\mathrm{Cos}[f\,x]-c^3\,\mathrm{Sin}[f\,x]+3\,c\,d^2\,\mathrm{Sin}[f\,x]}{c^3\,\mathrm{Cos}[f\,x]-3\,c\,d^2\,\mathrm{Cos}[f\,x]-3\,c^2\,d\,\mathrm{Sin}[f\,x]+d^3\,\mathrm{Sin}[f\,x]}\right]\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\right)\Big/$$
$$\left((c-i\,d)^2\,(c+i\,d)^5\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)+\left(\mathrm{Sec}[e+f\,x]^3\,\left(5\,c\,d^4\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]-3\,i\,d^5\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]+5\,i\,c\,d^4\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]+3\,d^5\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\right)$$

$$\left(-\frac{1}{2}\,\mathrm{i}\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]+\frac{1}{2}\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\Big/$$
$$\left((c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^5\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\right)+\frac{\mathrm{Cos}[6\,f\,x]\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{1}{48}\,\mathrm{i}\,\mathrm{Cos}[3\,e]+\frac{1}{48}\,\mathrm{Sin}[3\,e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3}{(c+\mathrm{i}\,d)^2\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\left(\left(c^5+5\,\mathrm{i}\,c^4\,d-10\,c^3\,d^2-10\,\mathrm{i}\,c^2\,d^3-35\,c\,d^4+25\,\mathrm{i}\,d^5\right)\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{1}{8}\,f\,x\,\mathrm{Cos}[3\,e]+\frac{1}{8}\,\mathrm{i}\,f\,x\,\mathrm{Sin}[3\,e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\right)\Big/$$
$$\left((c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^5\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\right)+\frac{1}{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}$$
$$x\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{5\,c\,d^4\,\mathrm{Cos}[e]^2}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-\frac{3\,\mathrm{i}\,d^5\,\mathrm{Cos}[e]^2}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\right.$$
$$\frac{10\,\mathrm{i}\,c\,d^4\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{6\,d^5\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}-\frac{5\,c\,d^4\,\mathrm{Sin}[e]^2}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+$$
$$\left.\frac{3\,\mathrm{i}\,d^5\,\mathrm{Sin}[e]^2}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^4\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])}+\frac{(5\,c-3\,\mathrm{i}\,d)\,(-d\,\mathrm{Cos}[e]+c\,\mathrm{Sin}[e])\,\left(d^4\,\mathrm{Cos}[3\,e]+\mathrm{i}\,d^4\,\mathrm{Sin}[3\,e]\right)}{(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^5\,(-\mathrm{i}\,c\,\mathrm{Cos}[e]-\mathrm{i}\,d\,\mathrm{Sin}[e])}\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3+$$
$$\frac{\left(3\,c^2+14\,\mathrm{i}\,c\,d-23\,d^2\right)\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{\mathrm{Cos}[e]}{16}+\frac{1}{16}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[2\,f\,x]}{(c+\mathrm{i}\,d)^4\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\frac{(3\,c+7\,\mathrm{i}\,d)\,\mathrm{Sec}[e+f\,x]^3\,\left(\frac{\mathrm{Cos}[e]}{32}-\frac{1}{32}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[4\,f\,x]}{(c+\mathrm{i}\,d)^3\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\frac{\mathrm{Sec}[e+f\,x]^3\,\left(\frac{1}{48}\,\mathrm{Cos}[3\,e]-\frac{1}{48}\,\mathrm{i}\,\mathrm{Sin}[3\,e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[6\,f\,x]}{(c+\mathrm{i}\,d)^2\,f\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}+$$
$$\left(\mathrm{Sec}[e+f\,x]^3\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,\left(\frac{1}{2}\,d^5\,\mathrm{Cos}[3\,e-f\,x]-\frac{1}{2}\,d^5\,\mathrm{Cos}[3\,e+f\,x]+\frac{1}{2}\,\mathrm{i}\,d^5\,\mathrm{Sin}[3\,e-f\,x]-\frac{1}{2}\,\mathrm{i}\,d^5\,\mathrm{Sin}[3\,e+f\,x]\right)\right)\Big/$$
$$\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)^4\,f\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\right)$$

- **Problem 1095: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}{(c+d\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 134 leaves, 4 steps) :

$$\frac{4\,a^3\,x}{(c-\mathrm{i}\,d)^3}-\frac{4\,a^3\,\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]}{(\mathrm{i}\,c+d)^3\,f}-\frac{a\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2}{2\,(\mathrm{i}\,c+d)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^2}+\frac{2\,a^3\,(c+\mathrm{i}\,d)}{(c-\mathrm{i}\,d)^2\,d\,f\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 595 leaves) :

$$\frac{1}{2 (c - i d)^3 f (c \operatorname{Cos}[e] + d \operatorname{Sin}[e]) (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2}$$
$$a^3 \Big(2 c^3 f x \operatorname{Cos}[3 e + 2 f x] - 6 c d^2 f x \operatorname{Cos}[3 e + 2 f x] - i c^3 \operatorname{Cos}[3 e + 2 f x] \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] + 3 i c d^2 \operatorname{Cos}[3 e + 2 f x] \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] + (c^2 + d^2) \operatorname{Cos}[e + 2 f x] \Big(3 d + 2 c f x - i c \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big]\Big) + (c^2 + d^2) \operatorname{Cos}[e] \Big(-i c - 3 d + 4 c f x - 2 i c \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big]\Big) + 3 c^3 \operatorname{Sin}[e] - i c^2 d \operatorname{Sin}[e] + 3 c d^2 \operatorname{Sin}[e] - i d^3 \operatorname{Sin}[e] + 4 c^2 d f x \operatorname{Sin}[e] + 4 d^3 f x \operatorname{Sin}[e] - 2 i c^2 d \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[e] - 2 i d^3 \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[e] - 3 c^3 \operatorname{Sin}[e + 2 f x] - 3 c d^2 \operatorname{Sin}[e + 2 f x] + 2 c^2 d f x \operatorname{Sin}[e + 2 f x] + 2 d^3 f x \operatorname{Sin}[e + 2 f x] - i c^2 d \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[e + 2 f x] - i d^3 \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[e + 2 f x] + 6 c^2 d f x \operatorname{Sin}[3 e + 2 f x] - 2 d^3 f x \operatorname{Sin}[3 e + 2 f x] - 3 i c^2 d \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[3 e + 2 f x] + i d^3 \operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] \operatorname{Sin}[3 e + 2 f x]\Big)$$

- **Problem 1096: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^2}{(c + d \operatorname{Tan}[e + f x])^3} \, dx$$

Optimal (type 3, 125 leaves, 4 steps):

$$\frac{2 a^2 x}{(c - i d)^3} - \frac{2 a^2 \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(i c + d)^3 f} + \frac{a^2 (i c - d)}{2 d (i c + d) f (c + d \operatorname{Tan}[e + f x])^2} + \frac{2 i a^2}{(c - i d)^2 f (c + d \operatorname{Tan}[e + f x])}$$

Result (type 3, 317 leaves):

$$\left(a^2 (\operatorname{Cos}[e + f x] + i \operatorname{Sin}[e + f x])^2 \left(\frac{\operatorname{Log}\big[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\big] (-i \operatorname{Cos}[2 e] - \operatorname{Sin}[2 e])}{f} + 4 x (\operatorname{Cos}[2 e] - i \operatorname{Sin}[2 e]) - \frac{2 \operatorname{ArcTan}\Big[\frac{(-3 c^2 d + d^3) \operatorname{Cos}[3 e + f x] + c (c^2 - 3 d^2) \operatorname{Sin}[3 e + f x]}{c (c^2 - 3 d^2) \operatorname{Cos}[3 e + f x] - d (-3 c^2 + d^2) \operatorname{Sin}[3 e + f x]}\Big] (\operatorname{Cos}[2 e] - i \operatorname{Sin}[2 e])}{f} + \frac{(c - i d) d (\operatorname{Cos}[2 e] - i \operatorname{Sin}[2 e])}{2 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2} - \frac{(c - i d) (c + 2 i d) (\operatorname{Cos}[2 e] - i \operatorname{Sin}[2 e]) \operatorname{Sin}[f x]}{f (c \operatorname{Cos}[e] + d \operatorname{Sin}[e]) (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])}\right)\right) \Big/ \left((c - i d)^3 (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^2\right)$$

- **Problem 1097: Result more than twice size of optimal antiderivative.**

$$\int \frac{a + i a \operatorname{Tan}[e + f x]}{(c + d \operatorname{Tan}[e + f x])^3} \, dx$$

Optimal (type 3, 104 leaves, 4 steps):

$$\frac{a x}{(c - i d)^3} - \frac{a \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(i c + d)^3 f} - \frac{a}{2 (i c + d) f (c + d \operatorname{Tan}[e + f x])^2} + \frac{i a}{(c - i d)^2 f (c + d \operatorname{Tan}[e + f x])}$$

Result (type 3, 315 leaves):

$$\frac{1}{(c-i d)^3}\text{Cos}[e+f x]\,(\text{Cos}[f x]-i\,\text{Sin}[f x])\left(2 x\,(\text{Cos}[e]-i\,\text{Sin}[e])-\frac{\text{ArcTan}\left[\frac{\left(-3 c^2 d+d^3\right)\text{Cos}[2 e+f x]+c\left(c^2-3 d^2\right)\text{Sin}[2 e+f x]}{c\left(c^2-3 d^2\right)\text{Cos}[2 e+f x]-d\left(-3 c^2+d^2\right)\text{Sin}[2 e+f x]}\right](\text{Cos}[e]-i\,\text{Sin}[e])}{f}-\frac{i\,\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right](\text{Cos}[e]-i\,\text{Sin}[e])}{2 f}+\frac{(c-i d)\,d^2\,(i\,\text{Cos}[e]+\text{Sin}[e])}{2\,(c+i d)\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2}+\frac{(c-i d)\,d\,(-2 i c+d)\,(\text{Cos}[e]-i\,\text{Sin}[e])\,\text{Sin}[f x]}{(c+i d)\,f\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}\right)(a+i\,a\,\text{Tan}[e+f x])$$

- **Problem 1098: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i\,a\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 273 leaves, 5 steps) :

$$\frac{\left(c^4+4 i c^3 d+6 c^2 d^2-12 i c d^3-3 d^4\right)x}{2 a\,(c-i d)^3\,(c+i d)^4}+\frac{2 d^2\left(3 c^2-2 i c d-d^2\right)\text{Log}[c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]]}{a\,(c+i d)^4\,(i c+d)^3 f}+\frac{(c-2 i d)\,d}{2 a\,(c-i d)\,(c+i d)^2 f\,(c+d\,\text{Tan}[e+f x])^2}-\frac{1}{2\,(i c-d)\,f\,(a+i\,a\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2}+\frac{d\left(c^2-8 i c d-3 d^2\right)}{2 a\,(c-i d)^2\,(c+i d)^3 f\,(c+d\,\text{Tan}[e+f x])}$$

Result (type 3, 1231 leaves) :

$$\left(\text{Sec}[e+f x]\left(3 c^2 d^2 \text{Cos}\left[\frac{e}{2}\right]-2 i c d^3 \text{Cos}\left[\frac{e}{2}\right]-d^4 \text{Cos}\left[\frac{e}{2}\right]+3 i c^2 d^2 \text{Sin}\left[\frac{e}{2}\right]+2 c d^3 \text{Sin}\left[\frac{e}{2}\right]-i d^4 \text{Sin}\left[\frac{e}{2}\right]\right)\right.$$

$$\left(-2 \text{ArcTan}\left[\frac{-d \text{Cos}[f x]-c \text{Sin}[f x]}{c \text{Cos}[f x]-d \text{Sin}[f x]}\right] \text{Cos}\left[\frac{e}{2}\right]-2 i \text{ArcTan}\left[\frac{-d \text{Cos}[f x]-c \text{Sin}[f x]}{c \text{Cos}[f x]-d \text{Sin}[f x]}\right] \text{Sin}\left[\frac{e}{2}\right]\right)$$

$$\left.(\text{Cos}[f x]+i \text{Sin}[f x])\right)\Big/\left((c-i d)^3 (c+i d)^4 f (a+i a \text{Tan}[e+f x])\right)+$$

$$\left(\text{Sec}[e+f x]\left(3 c^2 d^2 \text{Cos}\left[\frac{e}{2}\right]-2 i c d^3 \text{Cos}\left[\frac{e}{2}\right]-d^4 \text{Cos}\left[\frac{e}{2}\right]+3 i c^2 d^2 \text{Sin}\left[\frac{e}{2}\right]+2 c d^3 \text{Sin}\left[\frac{e}{2}\right]-i d^4 \text{Sin}\left[\frac{e}{2}\right]\right)\right.$$

$$\left.\left(i \text{Cos}\left[\frac{e}{2}\right] \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right]-\text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right] \text{Sin}\left[\frac{e}{2}\right]\right)(\text{Cos}[f x]+i \text{Sin}[f x])\right)\Big/$$

$$\left((c-i d)^3 (c+i d)^4 f (a+i a \text{Tan}[e+f x])\right)+\frac{\text{Cos}[2 f x] \text{Sec}[e+f x]\left(\frac{1}{4} i \text{Cos}[e]+\frac{\text{Sin}[e]}{4}\right)(\text{Cos}[f x]+i \text{Sin}[f x])}{(c+i d)^3 f (a+i a \text{Tan}[e+f x])}+$$

$$\left(\left(c^4+4 i c^3 d+6 c^2 d^2-12 i c d^3-3 d^4\right) \text{Sec}[e+f x]\left(\frac{1}{2} f x \text{Cos}[e]+\frac{1}{2} i f x \text{Sin}[e]\right)(\text{Cos}[f x]+i \text{Sin}[f x])\right)\Big/$$

$$\left((c-i d)^3 (c+i d)^4 f (a+i a \text{Tan}[e+f x])\right)+\frac{1}{a+i a \text{Tan}[e+f x]} x \text{Sec}[e+f x]$$

$$\left(-\frac{6 c^2 d^2}{(c-i d)^3 (c+i d)^3 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{4 i c d^3}{(c-i d)^3 (c+i d)^3 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{2 d^4}{(c-i d)^3 (c+i d)^3 (c \text{Cos}[e]+d \text{Sin}[e])}+\right.$$

$$\left(\left(3 c^2 d^2-2 i c d^3-d^4\right)(2 \text{Cos}[e]+2 i \text{Sin}[e])(c+i d-c \text{Cos}[2 e]+i d \text{Cos}[2 e]-i c \text{Sin}[2 e]-d \text{Sin}[2 e])\right)\Big/$$

$$\left.\left((c-i d)^3 (c+i d)^4 (c+i d+c \text{Cos}[2 e]-i d \text{Cos}[2 e]+i c \text{Sin}[2 e]+d \text{Sin}[2 e])\right)\right)$$

$$(\text{Cos}[f x]+i \text{Sin}[f x])+\frac{\text{Sec}[e+f x]\left(\frac{\text{Cos}[e]}{4}-\frac{1}{4} i \text{Sin}[e]\right)(\text{Cos}[f x]+i \text{Sin}[f x]) \text{Sin}[2 f x]}{(c+i d)^3 f (a+i a \text{Tan}[e+f x])}+$$

$$\frac{\text{Sec}[e+f x]\left(-\frac{1}{2} i d^4 \text{Cos}[e]+\frac{1}{2} d^4 \text{Sin}[e]\right)(\text{Cos}[f x]+i \text{Sin}[f x])}{(c-i d)^2 (c+i d)^3 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+i a \text{Tan}[e+f x])}+$$

$$\left(\text{Sec}[e+f x](\text{Cos}[f x]+i \text{Sin}[f x])\left(-2 c d^3 \text{Cos}[e-f x]+\frac{1}{2} i d^4 \text{Cos}[e-f x]+2 c d^3 \text{Cos}[e+f x]-\right.\right.$$

$$\left.\left.\frac{1}{2} i d^4 \text{Cos}[e+f x]-2 i c d^3 \text{Sin}[e-f x]-\frac{1}{2} d^4 \text{Sin}[e-f x]+2 i c d^3 \text{Sin}[e+f x]+\frac{1}{2} d^4 \text{Sin}[e+f x]\right)\right)\Big/$$

$$\left((c-i d)^2 (c+i d)^3 f (c \text{Cos}[e]+d \text{Sin}[e])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])(a+i a \text{Tan}[e+f x])\right)$$

Problem 1099: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+i a \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3}\, dx$$

Optimal (type 3, 354 leaves, 6 steps):

$$\frac{\left(c^5+5 i c^4 d-10 c^3 d^2+30 i c^2 d^3+45 c d^4-15 i d^5\right) x}{4 a^2 (c-i d)^3 (c+i d)^5}-\frac{2 d^3 \left(5 c^2-5 i c d-2 d^2\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{a^2 (i c-d)^5 (i c+d)^3 f}+\frac{d \left(c^2+5 i c d+8 d^2\right)}{4 a^2 (c-i d) (c+i d)^3 f (c+d \text{Tan}[e+f x])^2}+\frac{i c-5 d}{4 a^2 (c+i d)^2 f (1+i \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2}-\frac{1}{4 (i c-d) f (a+i a \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2}+\frac{(c-3 i d) d \left(c^2+8 i c d+5 d^2\right)}{4 a^2 (c-i d)^2 (c+i d)^4 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 4395 leaves) :

$$\Big(\text{Sec}[e+f x]^2 \left(5 c^2 d^3 \text{Cos}[e]-5 i c d^4 \text{Cos}[e]-2 d^5 \text{Cos}[e]+5 i c^2 d^3 \text{Sin}[e]+5 c d^4 \text{Sin}[e]-2 i d^5 \text{Sin}[e]\right) \left(-2 i \text{ArcTan}\left[\frac{-2 c d \text{Cos}[f x]-c^2 \text{Sin}[f x]+d^2 \text{Sin}[f x]}{c^2 \text{Cos}[f x]-d^2 \text{Cos}[f x]-2 c d \text{Sin}[f x]}\right] \text{Cos}[e]+2 \text{ArcTan}\left[\frac{-2 c d \text{Cos}[f x]-c^2 \text{Sin}[f x]+d^2 \text{Sin}[f x]}{c^2 \text{Cos}[f x]-d^2 \text{Cos}[f x]-2 c d \text{Sin}[f x]}\right] \text{Sin}[e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2\Big) \Big/ \left((c-i d)^3 (c+i d)^5 f (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\Big(\text{Sec}[e+f x]^2 \left(5 c^2 d^3 \text{Cos}[e]-5 i c d^4 \text{Cos}[e]-2 d^5 \text{Cos}[e]+5 i c^2 d^3 \text{Sin}[e]+5 c d^4 \text{Sin}[e]-2 i d^5 \text{Sin}[e]\right) \left(-\text{Cos}[e] \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right]-i \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right] \text{Sin}[e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2\Big) \Big/ \left((c-i d)^3 (c+i d)^5 f (a+i a \text{Tan}[e+f x])^2\right)+\frac{1}{(a+i a \text{Tan}[e+f x])^2}$$

$$x \text{Sec}[e+f x]^2 \Bigg(-\frac{10 i c^2 d^3 \text{Cos}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}-\frac{10 c d^4 \text{Cos}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{4 i d^5 \text{Cos}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{10 c^2 d^3 \text{Sin}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}-\frac{10 i c d^4 \text{Sin}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}-\frac{4 d^5 \text{Sin}[e]}{(c-i d)^3 (c+i d)^4 (c \text{Cos}[e]+d \text{Sin}[e])}+\Big((2 \text{Cos}[2 e]+2 i \text{Sin}[2 e]) \big(5 i c^3 d^3+3 i c d^5+2 d^6-5 i c^3 d^3 \text{Cos}[2 e]-10 c^2 d^4 \text{Cos}[2 e]+7 i c d^5 \text{Cos}[2 e]+2 d^6 \text{Cos}[2 e]+5 c^3 d^3 \text{Sin}[2 e]-10 i c^2 d^4 \text{Sin}[2 e]-7 c d^5 \text{Sin}[2 e]+2 i d^6 \text{Sin}[2 e]\big)\Big) \Big/ \left((c-i d)^3 (c+i d)^5 (c+i d+c \text{Cos}[2 e]-i d \text{Cos}[2 e]+i c \text{Sin}[2 e]+d \text{Sin}[2 e])\right)\Bigg) (\text{Cos}[f x]+i \text{Sin}[f x])^2+$$

$$\left(\text{Sec}[e+f x]^2 (\text{Cos}[f x]+i \text{Sin}[f x])^2 \left(\frac{1}{64} \text{Cos}[2 e+4 f x]-\frac{1}{64} i \text{Sin}[2 e+4 f x]\right)\right.$$
$$\big(6 i c^8 \text{Cos}[e]-14 c^7 d \text{Cos}[e]+18 i c^6 d^2 \text{Cos}[e]-42 c^5 d^3 \text{Cos}[e]+18 i c^4 d^4 \text{Cos}[e]-42 c^3 d^5 \text{Cos}[e]+6 i c^2 d^6 \text{Cos}[e]-14 c d^7 \text{Cos}[e]+5 i c^8 \text{Cos}[e+2 f x]-11 c^7 d \text{Cos}[e+2 f x]+31 i c^6 d^2 \text{Cos}[e+2 f x]-33 c^5 d^3 \text{Cos}[e+2 f x]+63 i c^4 d^4 \text{Cos}[e+2 f x]-33 c^3 d^5 \text{Cos}[e+2 f x]+53 i c^2 d^6 \text{Cos}[e+2 f x]-11 c d^7 \text{Cos}[e+2 f x]+16 i d^8 \text{Cos}[e+2 f x]+2 c^8 f x \text{Cos}[e+2 f x]+16 i c^7 d f x \text{Cos}[e+2 f x]-56 c^6 d^2 f x \text{Cos}[e+2 f x]-32 i c^5 d^3 f x \text{Cos}[e+2 f x]-20 c^4 d^4 f x \text{Cos}[e+2 f x]+80 i c^3 d^5 f x \text{Cos}[e+2 f x]-120 c^2 d^6 f x \text{Cos}[e+2 f x]-30 d^8 f x \text{Cos}[e+2 f x]+5 i c^8 \text{Cos}[3 e+2 f x]-3 c^7 d \text{Cos}[3 e+2 f x]+43 i c^6 d^2 \text{Cos}[3 e+2 f x]+35 c^5 d^3 \text{Cos}[3 e+2 f x]-25 i c^4 d^4 \text{Cos}[3 e+2 f x]+127 c^3 d^5 \text{Cos}[3 e+2 f x]-111 i c^2 d^6 \text{Cos}[3 e+2 f x]+89 c d^7 \text{Cos}[3 e+2 f x]-48 i d^8 \text{Cos}[3 e+2 f x]+2 c^8 f x \text{Cos}[3 e+2 f x]+12 i c^7 d f x \text{Cos}[3 e+2 f x]-28 c^6 d^2 f x \text{Cos}[3 e+2 f x]+52 i c^5 d^3 f x \text{Cos}[3 e+2 f x]+100 i c^3 d^5 f x \text{Cos}[3 e+2 f x]+60 c^2 d^6 f x \text{Cos}[3 e+2 f x]+60 i c d^7 f x \text{Cos}[3 e+2 f x]+30 d^8 f x \text{Cos}[3 e+2 f x]+$$

$2 i c^8 Cos[3e+4fx] - 2c^7 d Cos[3e+4fx] + 22 i c^6 d^2 Cos[3e+4fx] + 18 c^5 d^3 Cos[3e+4fx] + 110 i c^4 d^4 Cos[3e+4fx] +$
$10 c^3 d^5 Cos[3e+4fx] + 130 i c^2 d^6 Cos[3e+4fx] - 10 c d^7 Cos[3e+4fx] + 40 i d^8 Cos[3e+4fx] + 4 c^8 f x Cos[3e+4fx] +$
$24 i c^7 d f x Cos[3e+4fx] - 56 c^6 d^2 f x Cos[3e+4fx] + 104 i c^5 d^3 f x Cos[3e+4fx] + 200 i c^3 d^5 f x Cos[3e+4fx] +$
$120 c^2 d^6 f x Cos[3e+4fx] + 120 i c d^7 f x Cos[3e+4fx] + 60 d^8 f x Cos[3e+4fx] + 2 i c^8 Cos[5e+4fx] + 2 c^7 d Cos[5e+4fx] +$
$22 i c^6 d^2 Cos[5e+4fx] + 62 c^5 d^3 Cos[5e+4fx] - 130 i c^4 d^4 Cos[5e+4fx] - 74 c^3 d^5 Cos[5e+4fx] - 126 i c^2 d^6 Cos[5e+4fx] -$
$134 c d^7 Cos[5e+4fx] + 24 i d^8 Cos[5e+4fx] + 4 c^8 f x Cos[5e+4fx] + 16 i c^7 d f x Cos[5e+4fx] - 16 c^6 d^2 f x Cos[5e+4fx] +$
$176 i c^5 d^3 f x Cos[5e+4fx] + 280 c^4 d^4 f x Cos[5e+4fx] - 80 i c^3 d^5 f x Cos[5e+4fx] + 240 c^2 d^6 f x Cos[5e+4fx] -$
$240 i c d^7 f x Cos[5e+4fx] - 60 d^8 f x Cos[5e+4fx] + 80 i c^4 d^4 Cos[5e+6fx] + 112 c^3 d^5 Cos[5e+6fx] + 48 i c^2 d^6 Cos[5e+6fx] +$
$112 c d^7 Cos[5e+6fx] - 32 i d^8 Cos[5e+6fx] + 2 c^8 f x Cos[5e+6fx] + 8 i c^7 d f x Cos[5e+6fx] - 8 c^6 d^2 f x Cos[5e+6fx] +$
$88 i c^5 d^3 f x Cos[5e+6fx] + 140 c^4 d^4 f x Cos[5e+6fx] - 40 i c^3 d^5 f x Cos[5e+6fx] + 120 c^2 d^6 f x Cos[5e+6fx] -$
$120 i c d^7 f x Cos[5e+6fx] - 30 d^8 f x Cos[5e+6fx] + 2 c^8 f x Cos[7e+6fx] + 4 i c^7 d f x Cos[7e+6fx] + 4 c^6 d^2 f x Cos[7e+6fx] +$
$92 i c^5 d^3 f x Cos[7e+6fx] + 320 c^4 d^4 f x Cos[7e+6fx] - 500 i c^3 d^5 f x Cos[7e+6fx] - 420 c^2 d^6 f x Cos[7e+6fx] +$
$180 i c d^7 f x Cos[7e+6fx] + 30 d^8 f x Cos[7e+6fx] + 6 i c^7 d Sin[e] - 14 c^6 d^2 Sin[e] + 18 i c^5 d^3 Sin[e] - 42 c^4 d^4 Sin[e] +$
$18 i c^3 d^5 Sin[e] - 42 c^2 d^6 Sin[e] + 6 i c d^7 Sin[e] - 14 d^8 Sin[e] - 4 c^8 Sin[e+2fx] - 11 i c^7 d Sin[e+2fx] - 27 c^6 d^2 Sin[e+2fx] -$
$33 i c^5 d^3 Sin[e+2fx] - 57 c^4 d^4 Sin[e+2fx] - 33 i c^3 d^5 Sin[e+2fx] - 49 c^2 d^6 Sin[e+2fx] - 11 i c d^7 Sin[e+2fx] -$
$15 d^8 Sin[e+2fx] + 2 i c^8 f x Sin[e+2fx] - 16 c^7 d f x Sin[e+2fx] - 56 i c^6 d^2 f x Sin[e+2fx] + 32 c^5 d^3 f x Sin[e+2fx] -$
$20 i c^4 d^4 f x Sin[e+2fx] - 80 c^3 d^5 f x Sin[e+2fx] - 120 i c^2 d^6 f x Sin[e+2fx] - 30 i d^8 f x Sin[e+2fx] - 4 c^8 Sin[3e+2fx] -$
$i c^7 d Sin[3e+2fx] - 41 c^6 d^2 Sin[3e+2fx] + 41 i c^5 d^3 Sin[3e+2fx] + 25 c^4 d^4 Sin[3e+2fx] + 133 i c^3 d^5 Sin[3e+2fx] +$
$109 c^2 d^6 Sin[3e+2fx] + 91 i c d^7 Sin[3e+2fx] + 47 d^8 Sin[3e+2fx] + 2 i c^8 f x Sin[3e+2fx] - 12 c^7 d f x Sin[3e+2fx] -$
$28 i c^6 d^2 f x Sin[3e+2fx] - 52 c^5 d^3 f x Sin[3e+2fx] - 100 c^3 d^5 f x Sin[3e+2fx] + 60 i c^2 d^6 f x Sin[3e+2fx] -$
$60 c d^7 f x Sin[3e+2fx] + 30 i d^8 f x Sin[3e+2fx] - 2 c^8 Sin[3e+4fx] - 2 i c^7 d Sin[3e+4fx] - 22 c^6 d^2 Sin[3e+4fx] +$
$18 i c^5 d^3 Sin[3e+4fx] - 110 c^4 d^4 Sin[3e+4fx] + 10 i c^3 d^5 Sin[3e+4fx] - 130 c^2 d^6 Sin[3e+4fx] - 10 i c d^7 Sin[3e+4fx] -$
$40 d^8 Sin[3e+4fx] + 4 i c^8 f x Sin[3e+4fx] - 24 c^7 d f x Sin[3e+4fx] - 56 i c^6 d^2 f x Sin[3e+4fx] - 104 c^5 d^3 f x Sin[3e+4fx] -$
$200 c^3 d^5 f x Sin[3e+4fx] + 120 i c^2 d^6 f x Sin[3e+4fx] - 120 c d^7 f x Sin[3e+4fx] + 60 i d^8 f x Sin[3e+4fx] - 2 c^8 Sin[5e+4fx] +$
$2 i c^7 d Sin[5e+4fx] - 22 c^6 d^2 Sin[5e+4fx] + 62 i c^5 d^3 Sin[5e+4fx] + 130 c^4 d^4 Sin[5e+4fx] - 74 i c^3 d^5 Sin[5e+4fx] +$
$126 c^2 d^6 Sin[5e+4fx] - 134 i c d^7 Sin[5e+4fx] - 24 d^8 Sin[5e+4fx] + 4 i c^8 f x Sin[5e+4fx] - 16 c^7 d f x Sin[5e+4fx] -$
$16 i c^6 d^2 f x Sin[5e+4fx] - 176 c^5 d^3 f x Sin[5e+4fx] + 280 i c^4 d^4 f x Sin[5e+4fx] + 80 c^3 d^5 f x Sin[5e+4fx] +$
$240 i c^2 d^6 f x Sin[5e+4fx] + 240 c d^7 f x Sin[5e+4fx] - 60 i d^8 f x Sin[5e+4fx] - 80 c^4 d^4 Sin[5e+6fx] + 112 i c^3 d^5 Sin[5e+6fx] -$
$48 c^2 d^6 Sin[5e+6fx] + 112 i c d^7 Sin[5e+6fx] + 32 d^8 Sin[5e+6fx] + 2 i c^8 f x Sin[5e+6fx] - 8 c^7 d f x Sin[5e+6fx] -$
$8 i c^6 d^2 f x Sin[5e+6fx] - 88 c^5 d^3 f x Sin[5e+6fx] + 140 i c^4 d^4 f x Sin[5e+6fx] + 40 c^3 d^5 f x Sin[5e+6fx] +$
$120 i c^2 d^6 f x Sin[5e+6fx] + 120 c d^7 f x Sin[5e+6fx] - 30 i d^8 f x Sin[5e+6fx] + 2 i c^8 f x Sin[7e+6fx] -$
$4 c^7 d f x Sin[7e+6fx] + 4 i c^6 d^2 f x Sin[7e+6fx] - 92 c^5 d^3 f x Sin[7e+6fx] + 320 i c^4 d^4 f x Sin[7e+6fx] +$
$500 c^3 d^5 f x Sin[7e+6fx] - 420 i c^2 d^6 f x Sin[7e+6fx] - 180 c d^7 f x Sin[7e+6fx] + 30 i d^8 f x Sin[7e+6fx])\Big)\Big/$
$\Big((c - i d)^3 (c + i d)^5 f (c Cos[e] + d Sin[e]) (c Cos[e+fx] + d Sin[e+fx])^2 (a + i a Tan[e+fx])^2\Big)$

- **Problem 1100: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a + i a Tan[e+fx])^3 (c + d Tan[e+fx])^3} \, dx$$

Optimal (type 3, 448 leaves, 7 steps) :

$$\frac{\left(c^6+6 i c^5 d-15 c^4 d^2-20 i c^3 d^3-105 c^2 d^4+150 i c d^5+55 d^6\right) x}{8 a^3 (c-i d)^3 (c+i d)^6}-$$
$$\frac{d^4 \left(15 c^2-18 i c d-7 d^2\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{a^3 (c+i d)^6 (i c+d)^3 f}+\frac{d \left(c^3+6 i c^2 d-17 c d^2+28 i d^3\right)}{8 a^3 (c-i d) (c+i d)^4 f (c+d \text{Tan}[e+f x])^2}-$$
$$\frac{1}{6 (i c-d) f (a+i a \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2}+\frac{3 i c-13 d}{24 a (c+i d)^2 f (a+i a \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2}+$$
$$\frac{3 c^2+18 i c d-55 d^2}{24 (i c-d)^3 f \left(a^3+i a^3 \text{Tan}[e+f x]\right) (c+d \text{Tan}[e+f x])^2}+\frac{d \left(c^4+6 i c^3 d-16 c^2 d^2+94 i c d^3+55 d^4\right)}{8 a^3 (c-i d)^2 (c+i d)^5 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 5726 leaves) :

$$\left(\text{Sec}[e+f x]^3 \left(15 c^2 d^4 \text{Cos}\left[\frac{3 e}{2}\right]-18 i c d^5 \text{Cos}\left[\frac{3 e}{2}\right]-7 d^6 \text{Cos}\left[\frac{3 e}{2}\right]+15 i c^2 d^4 \text{Sin}\left[\frac{3 e}{2}\right]+18 c d^5 \text{Sin}\left[\frac{3 e}{2}\right]-7 i d^6 \text{Sin}\left[\frac{3 e}{2}\right]\right)\right.$$
$$\left(\text{ArcTan}\left[\frac{-3 c^2 d \text{Cos}[f x]+d^3 \text{Cos}[f x]-c^3 \text{Sin}[f x]+3 c d^2 \text{Sin}[f x]}{c^3 \text{Cos}[f x]-3 c d^2 \text{Cos}[f x]-3 c^2 d \text{Sin}[f x]+d^3 \text{Sin}[f x]}\right] \text{Cos}\left[\frac{3 e}{2}\right]+\right.$$
$$\left.i \text{ArcTan}\left[\frac{-3 c^2 d \text{Cos}[f x]+d^3 \text{Cos}[f x]-c^3 \text{Sin}[f x]+3 c d^2 \text{Sin}[f x]}{c^3 \text{Cos}[f x]-3 c d^2 \text{Cos}[f x]-3 c^2 d \text{Sin}[f x]+d^3 \text{Sin}[f x]}\right] \text{Sin}\left[\frac{3 e}{2}\right]\right)$$
$$\left.(\text{Cos}[f x]+i \text{Sin}[f x])^3\right)\Big/\left((c-i d)^3 (c+i d)^6 f (a+i a \text{Tan}[e+f x])^3\right)+$$
$$\left(\text{Sec}[e+f x]^3 \left(15 c^2 d^4 \text{Cos}\left[\frac{3 e}{2}\right]-18 i c d^5 \text{Cos}\left[\frac{3 e}{2}\right]-7 d^6 \text{Cos}\left[\frac{3 e}{2}\right]+15 i c^2 d^4 \text{Sin}\left[\frac{3 e}{2}\right]+18 c d^5 \text{Sin}\left[\frac{3 e}{2}\right]-7 i d^6 \text{Sin}\left[\frac{3 e}{2}\right]\right)\right.$$
$$\left.\left(-\frac{1}{2} i \text{Cos}\left[\frac{3 e}{2}\right] \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right]+\frac{1}{2} \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right] \text{Sin}\left[\frac{3 e}{2}\right]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^3\right)\Big/$$
$$\left((c-i d)^3 (c+i d)^6 f (a+i a \text{Tan}[e+f x])^3\right)+\frac{1}{(a+i a \text{Tan}[e+f x])^3}$$
$$x \text{Sec}[e+f x]^3 \left(\frac{15 c^2 d^4 \text{Cos}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}-\frac{18 i c d^5 \text{Cos}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}-\right.$$
$$\frac{7 d^6 \text{Cos}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{30 i c^2 d^4 \text{Cos}[e] \text{Sin}[e]}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{36 c d^5 \text{Cos}[e] \text{Sin}[e]}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}-$$
$$\frac{14 i d^6 \text{Cos}[e] \text{Sin}[e]}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}-\frac{15 c^2 d^4 \text{Sin}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}+\frac{18 i c d^5 \text{Sin}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}+$$
$$\frac{7 d^6 \text{Sin}[e]^2}{(c-i d)^3 (c+i d)^5 (c \text{Cos}[e]+d \text{Sin}[e])}+\left(\left(-15 c^3 d^4+3 i c^2 d^5-11 c d^6+7 i d^7+15 c^3 d^4 \text{Cos}[2 e]-33 i c^2 d^5 \text{Cos}[2 e]-25 c d^6 \text{Cos}[2 e]+\right.\right.$$
$$\left.\left.7 i d^7 \text{Cos}[2 e]+15 i c^3 d^4 \text{Sin}[2 e]+33 c^2 d^5 \text{Sin}[2 e]-25 i c d^6 \text{Sin}[2 e]-7 d^7 \text{Sin}[2 e]\right) (\text{Cos}[3 e]+i \text{Sin}[3 e])\right)\Big/$$
$$\left.\left((c-i d)^3 (c+i d)^6 (c+i d+c \text{Cos}[2 e]-i d \text{Cos}[2 e]+i c \text{Sin}[2 e]+d \text{Sin}[2 e])\right)\right) (\text{Cos}[f x]+i \text{Sin}[f x])^3+$$

$$\left(\operatorname{Sec}[e+f x]^3 (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^3 \left(\frac{1}{768} \operatorname{Cos}[3 e+6 f x]-\frac{1}{768} i \operatorname{Sin}[3 e+6 f x]\right)\right.$$

$$\left(26 i c^9 \operatorname{Cos}[e]-72 c^8 d \operatorname{Cos}[e]+32 i c^7 d^2 \operatorname{Cos}[e]-216 c^6 d^3 \operatorname{Cos}[e]-60 i c^5 d^4 \operatorname{Cos}[e]-216 c^4 d^5 \operatorname{Cos}[e]-112 i c^3 d^6 \operatorname{Cos}[e]-\right.$$
$$72 c^2 d^7 \operatorname{Cos}[e]-46 i c d^8 \operatorname{Cos}[e]+40 i c^9 \operatorname{Cos}[e+2 f x]-180 c^8 d \operatorname{Cos}[e+2 f x]-200 i c^7 d^2 \operatorname{Cos}[e+2 f x]-360 c^6 d^3 \operatorname{Cos}[e+2 f x]-$$
$$840 i c^5 d^4 \operatorname{Cos}[e+2 f x]-920 i c^3 d^6 \operatorname{Cos}[e+2 f x]+360 c^2 d^7 \operatorname{Cos}[e+2 f x]-320 i c d^8 \operatorname{Cos}[e+2 f x]+180 d^9 \operatorname{Cos}[e+2 f x]+$$
$$40 i c^9 \operatorname{Cos}[3 e+2 f x]-108 c^8 d \operatorname{Cos}[3 e+2 f x]+72 i c^7 d^2 \operatorname{Cos}[3 e+2 f x]-504 c^6 d^3 \operatorname{Cos}[3 e+2 f x]-24 i c^5 d^4 \operatorname{Cos}[3 e+2 f x]-$$
$$864 c^4 d^5 \operatorname{Cos}[3 e+2 f x]-104 i c^3 d^6 \operatorname{Cos}[3 e+2 f x]-648 c^2 d^7 \operatorname{Cos}[3 e+2 f x]-48 i c d^8 \operatorname{Cos}[3 e+2 f x]-180 d^9 \operatorname{Cos}[3 e+2 f x]+$$
$$45 i c^9 \operatorname{Cos}[3 e+4 f x]-189 c^8 d \operatorname{Cos}[3 e+4 f x]-72 i c^7 d^2 \operatorname{Cos}[3 e+4 f x]-1008 c^6 d^3 \operatorname{Cos}[3 e+4 f x]-486 i c^5 d^4 \operatorname{Cos}[3 e+4 f x]-$$
$$1890 c^4 d^5 \operatorname{Cos}[3 e+4 f x]-576 i c^3 d^6 \operatorname{Cos}[3 e+4 f x]-1512 c^2 d^7 \operatorname{Cos}[3 e+4 f x]-207 i c d^8 \operatorname{Cos}[3 e+4 f x]-441 d^9 \operatorname{Cos}[3 e+4 f x]+$$
$$12 c^9 f x \operatorname{Cos}[3 e+4 f x]+108 i c^8 d f x \operatorname{Cos}[3 e+4 f x]-432 c^7 d^2 f x \operatorname{Cos}[3 e+4 f x]-1008 i c^6 d^3 f x \operatorname{Cos}[3 e+4 f x]+$$
$$72 c^5 d^4 f x \operatorname{Cos}[3 e+4 f x]-1080 i c^4 d^5 f x \operatorname{Cos}[3 e+4 f x]-1200 c^3 d^6 f x \operatorname{Cos}[3 e+4 f x]-2160 i c^2 d^7 f x \operatorname{Cos}[3 e+4 f x]-$$
$$180 c d^8 f x \operatorname{Cos}[3 e+4 f x]-660 i d^9 f x \operatorname{Cos}[3 e+4 f x]+45 i c^9 \operatorname{Cos}[5 e+4 f x]-99 c^8 d \operatorname{Cos}[5 e+4 f x]+216 i c^7 d^2 \operatorname{Cos}[5 e+4 f x]-$$
$$864 c^6 d^3 \operatorname{Cos}[5 e+4 f x]+1386 i c^5 d^4 \operatorname{Cos}[5 e+4 f x]+162 c^4 d^5 \operatorname{Cos}[5 e+4 f x]+2880 i c^3 d^6 \operatorname{Cos}[5 e+4 f x]+1944 c^2 d^7 \operatorname{Cos}[5 e+4 f x]+$$
$$1665 i c d^8 \operatorname{Cos}[5 e+4 f x]+1017 d^9 \operatorname{Cos}[5 e+4 f x]+12 c^9 f x \operatorname{Cos}[5 e+4 f x]+84 i c^8 d f x \operatorname{Cos}[5 e+4 f x]-240 c^7 d^2 f x \operatorname{Cos}[5 e+4 f x]-$$
$$336 i c^6 d^3 f x \operatorname{Cos}[5 e+4 f x]-1272 c^5 d^4 f x \operatorname{Cos}[5 e+4 f x]+120 i c^4 d^5 f x \operatorname{Cos}[5 e+4 f x]-2160 c^3 d^6 f x \operatorname{Cos}[5 e+4 f x]+$$
$$1200 i c^2 d^7 f x \operatorname{Cos}[5 e+4 f x]-1140 c d^8 f x \operatorname{Cos}[5 e+4 f x]+660 i d^9 f x \operatorname{Cos}[5 e+4 f x]+18 i c^9 \operatorname{Cos}[5 e+6 f x]-$$
$$54 c^8 d \operatorname{Cos}[5 e+6 f x]+72 i c^7 d^2 \operatorname{Cos}[5 e+6 f x]-504 c^6 d^3 \operatorname{Cos}[5 e+6 f x]+684 i c^5 d^4 \operatorname{Cos}[5 e+6 f x]-1764 c^4 d^5 \operatorname{Cos}[5 e+6 f x]+$$
$$840 i c^3 d^6 \operatorname{Cos}[5 e+6 f x]-1848 c^2 d^7 \operatorname{Cos}[5 e+6 f x]+210 i c d^8 \operatorname{Cos}[5 e+6 f x]-534 d^9 \operatorname{Cos}[5 e+6 f x]+24 c^9 f x \operatorname{Cos}[5 e+6 f x]+$$
$$168 i c^8 d f x \operatorname{Cos}[5 e+6 f x]-480 c^7 d^2 f x \operatorname{Cos}[5 e+6 f x]-672 i c^6 d^3 f x \operatorname{Cos}[5 e+6 f x]-2544 c^5 d^4 f x \operatorname{Cos}[5 e+6 f x]+$$
$$240 i c^4 d^5 f x \operatorname{Cos}[5 e+6 f x]-4320 c^3 d^6 f x \operatorname{Cos}[5 e+6 f x]+2400 i c^2 d^7 f x \operatorname{Cos}[5 e+6 f x]-2280 c d^8 f x \operatorname{Cos}[5 e+6 f x]+$$
$$1320 i d^9 f x \operatorname{Cos}[5 e+6 f x]+18 i c^9 \operatorname{Cos}[7 e+6 f x]-18 c^8 d \operatorname{Cos}[7 e+6 f x]+144 i c^7 d^2 \operatorname{Cos}[7 e+6 f x]-288 c^6 d^3 \operatorname{Cos}[7 e+6 f x]+$$
$$1476 i c^5 d^4 \operatorname{Cos}[7 e+6 f x]+2700 c^4 d^5 \operatorname{Cos}[7 e+6 f x]-1248 i c^3 d^6 \operatorname{Cos}[7 e+6 f x]+2352 c^2 d^7 \operatorname{Cos}[7 e+6 f x]-$$
$$2598 i c d^8 \operatorname{Cos}[7 e+6 f x]-618 d^9 \operatorname{Cos}[7 e+6 f x]+24 c^9 f x \operatorname{Cos}[7 e+6 f x]+120 i c^8 d f x \operatorname{Cos}[7 e+6 f x]-192 c^7 d^2 f x \operatorname{Cos}[7 e+6 f x]-$$
$$3216 c^5 d^4 f x \operatorname{Cos}[7 e+6 f x]+6000 i c^4 d^5 f x \operatorname{Cos}[7 e+6 f x]+1920 c^3 d^6 f x \operatorname{Cos}[7 e+6 f x]+4800 i c^2 d^7 f x \operatorname{Cos}[7 e+6 f x]+$$
$$4920 c d^8 f x \operatorname{Cos}[7 e+6 f x]-1320 i d^9 f x \operatorname{Cos}[7 e+6 f x]-1152 c^4 d^5 \operatorname{Cos}[7 e+8 f x]+1728 i c^3 d^6 \operatorname{Cos}[7 e+8 f x]-$$
$$576 c^2 d^7 \operatorname{Cos}[7 e+8 f x]+1728 i c d^8 \operatorname{Cos}[7 e+8 f x]+576 d^9 \operatorname{Cos}[7 e+8 f x]+12 c^9 f x \operatorname{Cos}[7 e+8 f x]+60 i c^8 d f x \operatorname{Cos}[7 e+8 f x]-$$
$$96 c^7 d^2 f x \operatorname{Cos}[7 e+8 f x]-1608 c^5 d^4 f x \operatorname{Cos}[7 e+8 f x]+3000 i c^4 d^5 f x \operatorname{Cos}[7 e+8 f x]+960 c^3 d^6 f x \operatorname{Cos}[7 e+8 f x]+$$
$$2400 i c^2 d^7 f x \operatorname{Cos}[7 e+8 f x]+2460 c d^8 f x \operatorname{Cos}[7 e+8 f x]-660 i d^9 f x \operatorname{Cos}[7 e+8 f x]+12 c^9 f x \operatorname{Cos}[9 e+8 f x]+$$
$$36 i c^8 d f x \operatorname{Cos}[9 e+8 f x]+96 i c^6 d^3 f x \operatorname{Cos}[9 e+8 f x]-1512 c^5 d^4 f x \operatorname{Cos}[9 e+8 f x]+6120 i c^4 d^5 f x \operatorname{Cos}[9 e+8 f x]+$$
$$10080 c^3 d^6 f x \operatorname{Cos}[9 e+8 f x]-8640 i c^2 d^7 f x \operatorname{Cos}[9 e+8 f x]-3780 c d^8 f x \operatorname{Cos}[9 e+8 f x]+660 i d^9 f x \operatorname{Cos}[9 e+8 f x]+$$
$$26 i c^8 d \operatorname{Sin}[e]-72 c^7 d^2 \operatorname{Sin}[e]+32 i c^6 d^3 \operatorname{Sin}[e]-216 c^5 d^4 \operatorname{Sin}[e]-60 i c^4 d^5 \operatorname{Sin}[e]-216 c^3 d^6 \operatorname{Sin}[e]-112 i c^2 d^7 \operatorname{Sin}[e]-$$
$$72 c d^8 \operatorname{Sin}[e]-46 i d^9 \operatorname{Sin}[e]-36 c^9 \operatorname{Sin}[e+2 f x]-176 i c^8 d \operatorname{Sin}[e+2 f x]+216 c^7 d^2 \operatorname{Sin}[e+2 f x]-344 i c^6 d^3 \operatorname{Sin}[e+2 f x]+$$
$$864 c^5 d^4 \operatorname{Sin}[e+2 f x]+24 i c^4 d^5 \operatorname{Sin}[e+2 f x]+936 c^3 d^6 \operatorname{Sin}[e+2 f x]+376 i c^2 d^7 \operatorname{Sin}[e+2 f x]+324 c d^8 \operatorname{Sin}[e+2 f x]+$$
$$184 i d^9 \operatorname{Sin}[e+2 f x]-36 c^9 \operatorname{Sin}[3 e+2 f x]-96 i c^8 d \operatorname{Sin}[3 e+2 f x]-72 c^7 d^2 \operatorname{Sin}[3 e+2 f x]-472 i c^6 d^3 \operatorname{Sin}[3 e+2 f x]-$$
$$840 i c^4 d^5 \operatorname{Sin}[3 e+2 f x]+72 c^3 d^6 \operatorname{Sin}[3 e+2 f x]-648 i c^2 d^7 \operatorname{Sin}[3 e+2 f x]+36 c d^8 \operatorname{Sin}[3 e+2 f x]-184 i d^9 \operatorname{Sin}[3 e+2 f x]-$$
$$45 c^9 \operatorname{Sin}[3 e+4 f x]-189 i c^8 d \operatorname{Sin}[3 e+4 f x]+72 c^7 d^2 \operatorname{Sin}[3 e+4 f x]-1008 i c^6 d^3 \operatorname{Sin}[3 e+4 f x]+486 c^5 d^4 \operatorname{Sin}[3 e+4 f x]-$$
$$1890 i c^4 d^5 \operatorname{Sin}[3 e+4 f x]+576 c^3 d^6 \operatorname{Sin}[3 e+4 f x]-1512 i c^2 d^7 \operatorname{Sin}[3 e+4 f x]+207 c d^8 \operatorname{Sin}[3 e+4 f x]-441 i d^9 \operatorname{Sin}[3 e+4 f x]+$$
$$12 i c^9 f x \operatorname{Sin}[3 e+4 f x]-108 c^8 d f x \operatorname{Sin}[3 e+4 f x]-432 i c^7 d^2 f x \operatorname{Sin}[3 e+4 f x]+1008 c^6 d^3 f x \operatorname{Sin}[3 e+4 f x]+$$
$$72 i c^5 d^4 f x \operatorname{Sin}[3 e+4 f x]+1080 c^4 d^5 f x \operatorname{Sin}[3 e+4 f x]-1200 i c^3 d^6 f x \operatorname{Sin}[3 e+4 f x]+2160 c^2 d^7 f x \operatorname{Sin}[3 e+4 f x]-$$
$$180 i c d^8 f x \operatorname{Sin}[3 e+4 f x]+660 d^9 f x \operatorname{Sin}[3 e+4 f x]-45 c^9 \operatorname{Sin}[5 e+4 f x]-99 i c^8 d \operatorname{Sin}[5 e+4 f x]-216 c^7 d^2 \operatorname{Sin}[5 e+4 f x]-$$
$$864 i c^6 d^3 \operatorname{Sin}[5 e+4 f x]-1386 c^5 d^4 \operatorname{Sin}[5 e+4 f x]+162 i c^4 d^5 \operatorname{Sin}[5 e+4 f x]-2880 c^3 d^6 \operatorname{Sin}[5 e+4 f x]+1944 i c^2 d^7 \operatorname{Sin}[5 e+4 f x]-$$
$$1665 c d^8 \operatorname{Sin}[5 e+4 f x]+1017 i d^9 \operatorname{Sin}[5 e+4 f x]+12 i c^9 f x \operatorname{Sin}[5 e+4 f x]-84 c^8 d f x \operatorname{Sin}[5 e+4 f x]-240 i c^7 d^2 f x \operatorname{Sin}[5 e+4 f x]+$$
$$336 c^6 d^3 f x \operatorname{Sin}[5 e+4 f x]-1272 i c^5 d^4 f x \operatorname{Sin}[5 e+4 f x]-120 c^4 d^5 f x \operatorname{Sin}[5 e+4 f x]-2160 i c^3 d^6 f x \operatorname{Sin}[5 e+4 f x]-$$

$1200\,c^2\,d^7\,f\,x\,\text{Sin}[5\,e+4\,f\,x]-1140\,i\,c\,d^8\,f\,x\,\text{Sin}[5\,e+4\,f\,x]-660\,d^9\,f\,x\,\text{Sin}[5\,e+4\,f\,x]-18\,c^9\,\text{Sin}[5\,e+6\,f\,x]-54\,i\,c^8\,d\,\text{Sin}[5\,e+6\,f\,x]-$
$72\,c^7\,d^2\,\text{Sin}[5\,e+6\,f\,x]-504\,i\,c^6\,d^3\,\text{Sin}[5\,e+6\,f\,x]-684\,c^5\,d^4\,\text{Sin}[5\,e+6\,f\,x]-1764\,i\,c^4\,d^5\,\text{Sin}[5\,e+6\,f\,x]-840\,c^3\,d^6\,\text{Sin}[5\,e+6\,f\,x]-$
$1848\,i\,c^2\,d^7\,\text{Sin}[5\,e+6\,f\,x]-210\,c\,d^8\,\text{Sin}[5\,e+6\,f\,x]-534\,i\,d^9\,\text{Sin}[5\,e+6\,f\,x]+24\,i\,c^9\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-168\,c^8\,d\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-$
$480\,i\,c^7\,d^2\,f\,x\,\text{Sin}[5\,e+6\,f\,x]+672\,c^6\,d^3\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-2544\,i\,c^5\,d^4\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-240\,c^4\,d^5\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-$
$4320\,i\,c^3\,d^6\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-2400\,c^2\,d^7\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-2280\,i\,c\,d^8\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-1320\,d^9\,f\,x\,\text{Sin}[5\,e+6\,f\,x]-$
$18\,c^9\,\text{Sin}[7\,e+6\,f\,x]-18\,i\,c^8\,d\,\text{Sin}[7\,e+6\,f\,x]-144\,c^7\,d^2\,\text{Sin}[7\,e+6\,f\,x]-288\,i\,c^6\,d^3\,\text{Sin}[7\,e+6\,f\,x]-1476\,c^5\,d^4\,\text{Sin}[7\,e+6\,f\,x]+$
$2700\,i\,c^4\,d^5\,\text{Sin}[7\,e+6\,f\,x]+1248\,c^3\,d^6\,\text{Sin}[7\,e+6\,f\,x]+2352\,i\,c^2\,d^7\,\text{Sin}[7\,e+6\,f\,x]+2598\,c\,d^8\,\text{Sin}[7\,e+6\,f\,x]-$
$618\,i\,d^9\,\text{Sin}[7\,e+6\,f\,x]+24\,i\,c^9\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-120\,c^8\,d\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-192\,i\,c^7\,d^2\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-$
$3216\,i\,c^5\,d^4\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-6000\,c^4\,d^5\,f\,x\,\text{Sin}[7\,e+6\,f\,x]+1920\,i\,c^3\,d^6\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-4800\,c^2\,d^7\,f\,x\,\text{Sin}[7\,e+6\,f\,x]+$
$4920\,i\,c\,d^8\,f\,x\,\text{Sin}[7\,e+6\,f\,x]+1320\,d^9\,f\,x\,\text{Sin}[7\,e+6\,f\,x]-1152\,i\,c^4\,d^5\,\text{Sin}[7\,e+8\,f\,x]-1728\,c^3\,d^6\,\text{Sin}[7\,e+8\,f\,x]-$
$576\,i\,c^2\,d^7\,\text{Sin}[7\,e+8\,f\,x]-1728\,c\,d^8\,\text{Sin}[7\,e+8\,f\,x]+576\,i\,d^9\,\text{Sin}[7\,e+8\,f\,x]+12\,i\,c^9\,f\,x\,\text{Sin}[7\,e+8\,f\,x]-60\,c^8\,d\,f\,x\,\text{Sin}[7\,e+8\,f\,x]-$
$96\,i\,c^7\,d^2\,f\,x\,\text{Sin}[7\,e+8\,f\,x]-1608\,i\,c^5\,d^4\,f\,x\,\text{Sin}[7\,e+8\,f\,x]-3000\,c^4\,d^5\,f\,x\,\text{Sin}[7\,e+8\,f\,x]+960\,i\,c^3\,d^6\,f\,x\,\text{Sin}[7\,e+8\,f\,x]-$
$2400\,c^2\,d^7\,f\,x\,\text{Sin}[7\,e+8\,f\,x]+2460\,i\,c\,d^8\,f\,x\,\text{Sin}[7\,e+8\,f\,x]+660\,d^9\,f\,x\,\text{Sin}[7\,e+8\,f\,x]+12\,i\,c^9\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-$
$36\,c^8\,d\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-96\,c^6\,d^3\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-1512\,i\,c^5\,d^4\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-6120\,c^4\,d^5\,f\,x\,\text{Sin}[9\,e+8\,f\,x]+$
$10\,080\,i\,c^3\,d^6\,f\,x\,\text{Sin}[9\,e+8\,f\,x]+8640\,c^2\,d^7\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-3780\,i\,c\,d^8\,f\,x\,\text{Sin}[9\,e+8\,f\,x]-660\,d^9\,f\,x\,\text{Sin}[9\,e+8\,f\,x])\Big)\Big/$
$\Big((c-i\,d)^3\,(c+i\,d)^6\,f\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+i\,a\,\text{Tan}[e+f\,x])^3\Big)$

- **Problem 1101: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[e+f\,x])^3\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 150 leaves, 6 steps):

$$-\frac{8\,i\,a^3\,\sqrt{c-i\,d}\,\text{ArcTanh}\Big[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\Big]}{f}+\frac{8\,i\,a^3\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{f}+$$
$$\frac{4\,a^3\,(i\,c-6\,d)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{15\,d^2\,f}-\frac{2\,\big(a^3+i\,a^3\,\text{Tan}[e+f\,x]\big)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{5\,d\,f}$$

Result (type 3, 403 leaves):

$$-\left(4\,i\,\sqrt{c-i\,d}\,\operatorname{Cos}[e+f\,x]^3\operatorname{Log}\left[\frac{2\,e^{-2\,i\,e}\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\operatorname{Cos}[3\,e]-i\operatorname{Sin}[3\,e])\,(a+i\,a\operatorname{Tan}[e+f\,x])^3\right)\Big/\left(f\,(\operatorname{Cos}[f\,x]+i\operatorname{Sin}[f\,x])^3\right)+\frac{1}{f\,(\operatorname{Cos}[f\,x]+i\operatorname{Sin}[f\,x])^3}$$

$$\operatorname{Cos}[e+f\,x]^3\left(\operatorname{Sec}[e+f\,x]^2\left(-\frac{2}{5}\,i\operatorname{Cos}[3\,e]-\frac{2}{5}\operatorname{Sin}[3\,e]\right)+\operatorname{Sec}[e]\left(2\,c^2\operatorname{Cos}[e]+15\,i\,c\,d\operatorname{Cos}[e]+63\,d^2\operatorname{Cos}[e]-c\,d\operatorname{Sin}[e]+15\,i\,d^2\operatorname{Sin}[e]\right)\right.$$
$$\left.\left(\frac{2\,i\operatorname{Cos}[3\,e]}{15\,d^2}+\frac{2\operatorname{Sin}[3\,e]}{15\,d^2}\right)+\operatorname{Sec}[e]\operatorname{Sec}[e+f\,x]\left(\frac{2\operatorname{Cos}[3\,e]}{15\,d}-\frac{2\,i\operatorname{Sin}[3\,e]}{15\,d}\right)(-i\,c\operatorname{Sin}[f\,x]-15\,d\operatorname{Sin}[f\,x])\right)$$
$$\sqrt{\operatorname{Sec}[e+f\,x]\,(c\operatorname{Cos}[e+f\,x]+d\operatorname{Sin}[e+f\,x])}\,(a+i\,a\operatorname{Tan}[e+f\,x])^3$$

Problem 1102: Result more than twice size of optimal antiderivative.

$$\int(a+i\,a\operatorname{Tan}[e+f\,x])^2\sqrt{c+d\operatorname{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$-\frac{4\,i\,a^2\sqrt{c-i\,d}\operatorname{ArcTanh}\left[\frac{\sqrt{c+d\operatorname{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{4\,i\,a^2\sqrt{c+d\operatorname{Tan}[e+f\,x]}}{f}-\frac{2\,a^2\,(c+d\operatorname{Tan}[e+f\,x])^{3/2}}{3\,d\,f}$$

Result (type 3, 214 leaves):

$$-\left(2\,a^2\,(\operatorname{Cos}[2\,f\,x]+i\operatorname{Sin}[2\,f\,x])\left(3\,i\,\sqrt{c-i\,d}\,d\operatorname{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]+\right.\right.$$

$$\left.\left.(c-6\,i\,d)\sqrt{c+d\operatorname{Tan}[e+f\,x]}+d\operatorname{Tan}[e+f\,x]\sqrt{c+d\operatorname{Tan}[e+f\,x]}\right)\right)\Big/\left(3\,d\,f\,(\operatorname{Cos}[f\,x]+i\operatorname{Sin}[f\,x])^2\right)$$

Problem 1103: Result more than twice size of optimal antiderivative.

$$\int (a + i a \operatorname{Tan}[e + f x]) \sqrt{c + d \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 69 leaves, 4 steps):

$$-\frac{2 i a \sqrt{c - i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f} + \frac{2 i a \sqrt{c + d \operatorname{Tan}[e + f x]}}{f}$$

Result (type 3, 148 leaves):

$$\frac{1}{f} i a \left(-\sqrt{c - i d} \operatorname{Log}\left[\frac{2 \left(-i d e^{2 i (e+f x)} + c \left(1 + e^{2 i (e+f x)}\right) + \sqrt{c - i d} \left(1 + e^{2 i (e+f x)}\right) \sqrt{c - \frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)}{\sqrt{c - i d}}\right] + 2 \sqrt{c + d \operatorname{Tan}[e + f x]}\right)$$

Problem 1104: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{c + d \operatorname{Tan}[e + f x]}}{a + i a \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 3, 140 leaves, 8 steps):

$$-\frac{i \sqrt{c - i d} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{2 a f} + \frac{i c \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{2 a \sqrt{c + i d} f} + \frac{i \sqrt{c + d \operatorname{Tan}[e + f x]}}{2 f (a + i a \operatorname{Tan}[e + f x])}$$

Result (type 3, 339 leaves):

$$\frac{1}{4\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])}$$

$$\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])\left(-i\left(\sqrt{c-i\,d}\;\mathrm{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]-\right.\right.$$

$$\left.\frac{c\,\mathrm{Log}\left[\frac{8\,i\,e^{-2\,i\,f\,x}\left(i\,d+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c+i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{c\,\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)$$

$$\left.(\mathrm{Cos}[e]+i\,\mathrm{Sin}[e])+2\,\mathrm{Cos}[e+f\,x]\,(i\,\mathrm{Cos}[f\,x]+\mathrm{Sin}[f\,x])\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)$$

- **Problem 1107: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 181 leaves, 7 steps):

$$-\frac{8\,i\,a^3\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{8\,a^3\,(i\,c+d)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+$$

$$\frac{8\,i\,a^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{4\,a^3\,(i\,c-8\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{35\,d^2\,f}-\frac{2\left(a^3+i\,a^3\,\mathrm{Tan}[e+f\,x]\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{7\,d\,f}$$

Result (type 3, 499 leaves):

$$-\left(4\,i\,(c-i\,d)^{3/2}\,\mathrm{Cos}[e+f\,x]^3\,\mathrm{Log}\left[\frac{2\,e^{-2\,i\,e}\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\mathrm{Cos}[3\,e]-i\,\mathrm{Sin}[3\,e])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\right)+$$

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3}\,\mathrm{Cos}[e+f\,x]^3\left(\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,(8\,c\,\mathrm{Cos}[e]-21\,i\,d\,\mathrm{Cos}[e]+5\,d\,\mathrm{Sin}[e])\left(-\frac{2}{35}\,i\,\mathrm{Cos}[3\,e]-\frac{2}{35}\,\mathrm{Sin}[3\,e]\right)+\right.$$
$$\mathrm{Sec}[e]\left(6\,i\,c^3\,\mathrm{Cos}[e]-63\,c^2\,d\,\mathrm{Cos}[e]+584\,i\,c\,d^2\,\mathrm{Cos}[e]+483\,d^3\,\mathrm{Cos}[e]-3\,i\,c^2\,d\,\mathrm{Sin}[e]-126\,c\,d^2\,\mathrm{Sin}[e]+155\,i\,d^3\,\mathrm{Sin}[e]\right)$$
$$\left(\frac{2\,\mathrm{Cos}[3\,e]}{105\,d^2}-\frac{2\,i\,\mathrm{Sin}[3\,e]}{105\,d^2}\right)-i\,d\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^3\left(\frac{2}{7}\,\mathrm{Cos}[3\,e]-\frac{2}{7}\,i\,\mathrm{Sin}[3\,e]\right)\mathrm{Sin}[f\,x]+$$
$$\left.\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]\left(\frac{2\,\mathrm{Cos}[3\,e]}{105\,d}-\frac{2\,i\,\mathrm{Sin}[3\,e]}{105\,d}\right)\left(-3\,i\,c^2\,\mathrm{Sin}[f\,x]-126\,c\,d\,\mathrm{Sin}[f\,x]+155\,i\,d^2\,\mathrm{Sin}[f\,x]\right)\right)$$
$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3$$

- **Problem 1108: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 131 leaves, 6 steps):

$$-\frac{4\,i\,a^2\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{4\,a^2\,(i\,c+d)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{4\,i\,a^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}-\frac{2\,a^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,d\,f}$$

Result (type 3, 392 leaves):

$$-\left(2\,i\,(c-i\,d)^{3/2}\,\text{Cos}[e+f\,x]^2\,\text{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\text{Cos}[2\,e]-i\,\text{Sin}[2\,e])\,(a+i\,a\,\text{Tan}[e+f\,x])^2\right)\Big/\left(f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\right)+\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2}$$

$$\text{Cos}[e+f\,x]^2\left(\text{Sec}[e]\,\left(3\,c^2\,\text{Cos}[e]-40\,i\,c\,d\,\text{Cos}[e]-33\,d^2\,\text{Cos}[e]+6\,c\,d\,\text{Sin}[e]-10\,i\,d^2\,\text{Sin}[e]\right)\left(-\frac{2\,\text{Cos}[2\,e]}{15\,d}+\frac{2\,i\,\text{Sin}[2\,e]}{15\,d}\right)+\right.$$

$$\left.\text{Sec}[e+f\,x]^2\left(-\frac{2}{5}\,d\,\text{Cos}[2\,e]+\frac{2}{5}\,i\,d\,\text{Sin}[2\,e]\right)+\text{Sec}[e]\,\text{Sec}[e+f\,x]\left(-\frac{4}{15}\,\text{Cos}[2\,e]+\frac{4}{15}\,i\,\text{Sin}[2\,e]\right)(3\,c\,\text{Sin}[f\,x]-5\,i\,d\,\text{Sin}[f\,x])\right)$$

$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\,\,(a+i\,a\,\text{Tan}[e+f\,x])^2$$

- **Problem 1110: Result more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^{3/2}}{a+i\,a\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 153 leaves, 8 steps):

$$-\frac{i\,(c-i\,d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{2\,a\,f}+\frac{\sqrt{c+i\,d}\,\,(i\,c+2\,d)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{2\,a\,f}+\frac{(i\,c-d)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,f\,(a+i\,a\,\text{Tan}[e+f\,x])}$$

Result (type 3, 376 leaves):

$$\frac{1}{4\,f\,(a+i\,a\,\text{Tan}[e+f\,x])}$$

$$\text{Sec}[e+f\,x]\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,\Bigg(\Bigg(-i\,(c-i\,d)^{3/2}\,\text{Log}\Bigg[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\Bigg]+$$

$$\frac{\left(i\,c^2+c\,d+2\,i\,d^2\right)\,\text{Log}\Bigg[\frac{8\,i\,e^{-2\,i\,f\,x}\left(i\,d+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c+i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c+i\,d}\,\left(c^2-i\,c\,d+2\,d^2\right)}\Bigg]}{\sqrt{c+i\,d}}\Bigg)$$

$$(\text{Cos}[e]+i\,\text{Sin}[e])+2\,(c+i\,d)\,\text{Cos}[e+f\,x]\,(i\,\text{Cos}[f\,x]+\text{Sin}[f\,x])\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)$$

- **Problem 1113: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 216 leaves, 8 steps):

$$-\frac{8\,i\,a^3\,(c-i\,d)^{5/2}\,\text{ArcTanh}\Big[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\Big]}{f}+\frac{8\,i\,a^3\,(c-i\,d)^2\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{f}+\frac{8\,a^3\,(i\,c+d)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{3\,f}+$$
$$\frac{8\,i\,a^3\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{5\,f}+\frac{4\,a^3\,(i\,c-10\,d)\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{63\,d^2\,f}-\frac{2\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{9\,d\,f}$$

Result (type 3, 599 leaves):

$$-\left(4\,i\,(c-i\,d)^{5/2}\,\mathrm{Cos}[e+f\,x]^3\,\mathrm{Log}\left[\frac{2\,e^{-2\,i\,e}\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\mathrm{Cos}[3\,e]-i\,\mathrm{Sin}[3\,e])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\right)+$$

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3}\,\mathrm{Cos}[e+f\,x]^3\,\Big(\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,\left(75\,c^2\,\mathrm{Cos}[e]-405\,i\,c\,d\,\mathrm{Cos}[e]-322\,d^2\,\mathrm{Cos}[e]+95\,c\,d\,\mathrm{Sin}[e]-135\,i\,d^2\,\mathrm{Sin}[e]\right)$$

$$\left(-\frac{2}{315}\,i\,\mathrm{Cos}[3\,e]-\frac{2}{315}\,\mathrm{Sin}[3\,e]\right)+\mathrm{Sec}[e]\,\left(10\,i\,c^4\,\mathrm{Cos}[e]-135\,c^3\,d\,\mathrm{Cos}[e]+2007\,i\,c^2\,d^2\,\mathrm{Cos}[e]+3345\,c\,d^3\,\mathrm{Cos}[e]-\right.$$

$$\left.1547\,i\,d^4\,\mathrm{Cos}[e]-5\,i\,c^3\,d\,\mathrm{Sin}[e]-405\,c^2\,d^2\,\mathrm{Sin}[e]+1019\,i\,c\,d^3\,\mathrm{Sin}[e]+555\,d^4\,\mathrm{Sin}[e]\right)\left(\frac{2\,\mathrm{Cos}[3\,e]}{315\,d^2}-\frac{2\,i\,\mathrm{Sin}[3\,e]}{315\,d^2}\right)+$$

$$\mathrm{Sec}[e+f\,x]^4\left(-\frac{2}{9}\,i\,d^2\,\mathrm{Cos}[3\,e]-\frac{2}{9}\,d^2\,\mathrm{Sin}[3\,e]\right)+\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^3\left(\frac{2}{63}\,\mathrm{Cos}[3\,e]-\frac{2}{63}\,i\,\mathrm{Sin}[3\,e]\right)\left(-19\,i\,c\,d\,\mathrm{Sin}[f\,x]-27\,d^2\,\mathrm{Sin}[f\,x]\right)+$$

$$\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]\left(\frac{2\,\mathrm{Cos}[3\,e]}{315\,d}-\frac{2\,i\,\mathrm{Sin}[3\,e]}{315\,d}\right)\left(-5\,i\,c^3\,\mathrm{Sin}[f\,x]-405\,c^2\,d\,\mathrm{Sin}[f\,x]+1019\,i\,c\,d^2\,\mathrm{Sin}[f\,x]+555\,d^3\,\mathrm{Sin}[f\,x]\right)\Big)$$

$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\,\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3$$

- **Problem 1114: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 166 leaves, 7 steps):

$$-\frac{4\,i\,a^2\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{4\,i\,a^2\,(c-i\,d)^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+$$

$$\frac{4\,a^2\,(i\,c+d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{4\,i\,a^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,f}-\frac{2\,a^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{7/2}}{7\,d\,f}$$

Result (type 3, 485 leaves):

$$-\left(2\,i\,(c-i\,d)^{5/2}\,\mathrm{Cos}[e+f\,x]^2\,\mathrm{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^2\right)\Big/\left(f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2\right)+\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2}$$

$$\mathrm{Cos}[e+f\,x]^2\left(\mathrm{Sec}[e]\,\left(15\,c^3\,\mathrm{Cos}[e]-322\,i\,c^2\,d\,\mathrm{Cos}[e]-535\,c\,d^2\,\mathrm{Cos}[e]+252\,i\,d^3\,\mathrm{Cos}[e]+45\,c^2\,d\,\mathrm{Sin}[e]-154\,i\,c\,d^2\,\mathrm{Sin}[e]-85\,d^3\,\mathrm{Sin}[e]\right)\right.$$

$$\left(-\frac{2\,\mathrm{Cos}[2\,e]}{105\,d}+\frac{2\,i\,\mathrm{Sin}[2\,e]}{105\,d}\right)+\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,(15\,i\,c\,\mathrm{Cos}[e]+14\,d\,\mathrm{Cos}[e]+5\,i\,d\,\mathrm{Sin}[e])\left(\frac{2}{35}\,i\,d\,\mathrm{Cos}[2\,e]+\frac{2}{35}\,d\,\mathrm{Sin}[2\,e]\right)+$$

$$d^2\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^3\left(-\frac{2}{7}\,\mathrm{Cos}[2\,e]+\frac{2}{7}\,i\,\mathrm{Sin}[2\,e]\right)\mathrm{Sin}[f\,x]+\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]\left(-\frac{2}{105}\,\mathrm{Cos}[2\,e]+\frac{2}{105}\,i\,\mathrm{Sin}[2\,e]\right)$$

$$\left.\left(45\,c^2\,\mathrm{Sin}[f\,x]-154\,i\,c\,d\,\mathrm{Sin}[f\,x]-85\,d^2\,\mathrm{Sin}[f\,x]\right)\right)\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^2$$

- **Problem 1115: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 131 leaves, 6 steps) :

$$-\frac{2\,i\,a\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{f}+\frac{2\,i\,a\,(c-i\,d)^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{2\,a\,(i\,c+d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{2\,i\,a\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,f}$$

Result (type 3, 268 leaves) :

$$\frac{1}{f}\text{Cos}[e+f x]\,(\text{Cos}[f x]-i\,\text{Sin}[f x])\,(a+i\,a\,\text{Tan}[e+f x])$$

$$\left(-i\,(c-i\,d)^{5/2}\,\text{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f x)}+c\left(1+e^{2\,i\,(e+f x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f x)}\right)}{1+e^{2\,i\,(e+f x)}}}\right)}{\sqrt{c-i\,d}}\right](\text{Cos}[e]-i\,\text{Sin}[e])+\frac{1}{15}\text{Sec}[e+f x]^2\right.$$

$$\left.(i\,\text{Cos}[e]+\text{Sin}[e])\left(23\,c^2-35\,i\,c\,d-12\,d^2+\left(23\,c^2-35\,i\,c\,d-18\,d^2\right)\text{Cos}[2\,(e+f x)]+(11\,c-5\,i\,d)\,d\,\text{Sin}[2\,(e+f x)]\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)$$

Problem 1120: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f x])^2}{\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 74 leaves, 4 steps):

$$-\frac{4\,i\,a^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}\,f}-\frac{2\,a^2\,\sqrt{c+d\,\text{Tan}[e+f x]}}{d\,f}$$

Result (type 3, 153 leaves):

$$\frac{2\,a^2\left(-\frac{i\,\text{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f x)}+c\left(1+e^{2\,i\,(e+f x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f x)}\right)}{1+e^{2\,i\,(e+f x)}}}\right)}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{d}\right)}{f}$$

Problem 1121: Result more than twice size of optimal antiderivative.

$$\int\frac{a+i\,a\,\text{Tan}[e+f x]}{\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 46 leaves, 3 steps):

$$-\frac{2\,i\,a\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}\,f}$$

Result (type 3, 129 leaves) :

$$-\frac{i\, a\, \text{Log}\left[\frac{2\left(-i\, d\, e^{2\, i\, (e+f\, x)}+c\left(1+e^{2\, i\, (e+f\, x)}\right)+\sqrt{c-i\, d}\left(1+e^{2\, i\, (e+f\, x)}\right)\sqrt{c-\frac{i\, d\left(-1+e^{2\, i\, (e+f\, x)}\right)}{1+e^{2\, i\, (e+f\, x)}}}\right)}{\sqrt{c-i\, d}}\right]}{\sqrt{c-i\, d}\, f}$$

Problem 1125: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\, a\, \text{Tan}[e+f\, x])^3}{(c+d\, \text{Tan}[e+f\, x])^{3/2}}\, dx$$

Optimal (type 3, 139 leaves, 5 steps) :

$$-\frac{8\, i\, a^3\, \text{ArcTanh}\left[\frac{\sqrt{c+d\, \text{Tan}[e+f\, x]}}{\sqrt{c-i\, d}}\right]}{(c-i\, d)^{3/2}\, f}+\frac{2\, (c+i\, d)\left(a^3+i\, a^3\, \text{Tan}[e+f\, x]\right)}{(c-i\, d)\, d\, f\, \sqrt{c+d\, \text{Tan}[e+f\, x]}}+\frac{4\, a^3\, c\, \sqrt{c+d\, \text{Tan}[e+f\, x]}}{d^2\, (i\, c+d)\, f}$$

Result (type 3, 431 leaves) :

$$-\left(4\, i\, \text{Cos}[e+f\, x]^3\, \text{Log}\left[\frac{2\, e^{-2\, i\, e}\left(-i\, d\, e^{2\, i\, (e+f\, x)}+c\left(1+e^{2\, i\, (e+f\, x)}\right)+\sqrt{c-i\, d}\left(1+e^{2\, i\, (e+f\, x)}\right)\sqrt{c-\frac{i\, d\left(-1+e^{2\, i\, (e+f\, x)}\right)}{1+e^{2\, i\, (e+f\, x)}}}\right)}{\sqrt{c-i\, d}}\right]\right.$$
$$\left.(\text{Cos}[3\, e]-i\, \text{Sin}[3\, e])\, (a+i\, a\, \text{Tan}[e+f\, x])^3\right)\Big/\left((c-i\, d)^{3/2}\, f\, (\text{Cos}[f\, x]+i\, \text{Sin}[f\, x])^3\right)+$$
$$\frac{1}{f\, (\text{Cos}[f\, x]+i\, \text{Sin}[f\, x])^3}\text{Cos}[e+f\, x]^3\, \sqrt{\text{Sec}[e+f\, x]\, (c\, \text{Cos}[e+f\, x]+d\, \text{Sin}[e+f\, x])}$$
$$\left(\frac{\left(-2\, i\, c^2\, \text{Cos}[e]+c\, d\, \text{Cos}[e]+i\, d^2\, \text{Cos}[e]-i\, c\, d\, \text{Sin}[e]-d^2\, \text{Sin}[e]\right)\left(\frac{2\, \text{Cos}[3\, e]}{d^2}-\frac{2\, i\, \text{Sin}[3\, e]}{d^2}\right)}{(c-i\, d)\, (c\, \text{Cos}[e]+d\, \text{Sin}[e])}+\right.$$
$$\left.\frac{\left(\frac{2\, \text{Cos}[3\, e]}{d}-\frac{2\, i\, \text{Sin}[3\, e]}{d}\right)\left(i\, c^2\, \text{Sin}[f\, x]-2\, c\, d\, \text{Sin}[f\, x]-i\, d^2\, \text{Sin}[f\, x]\right)}{(c-i\, d)\, (c\, \text{Cos}[e]+d\, \text{Sin}[e])\, (c\, \text{Cos}[e+f\, x]+d\, \text{Sin}[e+f\, x])}\right)(a+i\, a\, \text{Tan}[e+f\, x])^3$$

Problem 1126: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\, a \operatorname{Tan}[e+f x])^2}{(c+d \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 3, 92 leaves, 4 steps):

$$-\frac{4\, i\, a^2 \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i\, d}}\right]}{(c-i\, d)^{3/2} f}+\frac{2\, a^2\, (i\, c-d)}{d\, (i\, c+d)\, f \sqrt{c+d \operatorname{Tan}[e+f x]}}$$

Result (type 3, 240 leaves):

$$\frac{1}{f\, (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^2} 2\, a^2\, (\operatorname{Cos}[2 e]-i \operatorname{Sin}[2 e])\, (\operatorname{Cos}[e+f x]+i \operatorname{Sin}[e+f x])^2$$

$$\left(-\frac{i \operatorname{Log}\left[\frac{2\left(-i\, d\, e^{2 i (e+f x)}+c\left(1+e^{2 i (e+f x)}\right)+\sqrt{c-i\, d}\left(1+e^{2 i (e+f x)}\right) \sqrt{c-\frac{i\, d\left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)}{\sqrt{c-i\, d}}\right]}{(c-i\, d)^{3/2}}+\frac{(c+i\, d) \operatorname{Cos}[e+f x] \sqrt{c+d \operatorname{Tan}[e+f x]}}{(c-i\, d)\, d\, (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])}\right)$$

Problem 1127: Result more than twice size of optimal antiderivative.

$$\int \frac{a+i\, a \operatorname{Tan}[e+f x]}{(c+d \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 3, 76 leaves, 4 steps):

$$-\frac{2\, i\, a \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i\, d}}\right]}{(c-i\, d)^{3/2} f}-\frac{2\, a}{(i\, c+d)\, f \sqrt{c+d \operatorname{Tan}[e+f x]}}$$

Result (type 3, 230 leaves):

$$\frac{1}{f} \operatorname{Cos}[e+f x]\, (\operatorname{Cos}[f x]-i \operatorname{Sin}[f x])\, (a+i\, a \operatorname{Tan}[e+f x])$$

$$\left(-\frac{i \operatorname{Log}\left[\frac{2\left(-i\, d\, e^{2 i (e+f x)}+c\left(1+e^{2 i (e+f x)}\right)+\sqrt{c-i\, d}\left(1+e^{2 i (e+f x)}\right) \sqrt{c-\frac{i\, d\left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)}{\sqrt{c-i\, d}}\right] (\operatorname{Cos}[e]-i \operatorname{Sin}[e])}{(c-i\, d)^{3/2}}+\frac{2 \operatorname{Cos}[e+f x]\, (i \operatorname{Cos}[e]+\operatorname{Sin}[e]) \sqrt{c+d \operatorname{Tan}[e+f x]}}{(c-i\, d)\, (c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])}\right)$$

Problem 1129: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{(a + i\, a \operatorname{Tan}[e + f x])^2 \,(c + d \operatorname{Tan}[e + f x])^{3/2}}\, dx$$

Optimal (type 3, 281 leaves, 10 steps):

$$-\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{4 a^2 (c - i d)^{3/2} f} + \frac{\left(2 i c^2 - 10 c d - 23 i d^2\right) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{8 a^2 (c + i d)^{7/2} f} + \frac{d \left(2 c^2 + 7 i c d + 25 d^2\right)}{8 a^2 (c - i d) (c + i d)^3 f \sqrt{c + d \operatorname{Tan}[e + f x]}} + \frac{2 i c - 7 d}{8 a^2 (c + i d)^2 f (1 + i \operatorname{Tan}[e + f x]) \sqrt{c + d \operatorname{Tan}[e + f x]}} - \frac{1}{4 (i c - d) f (a + i a \operatorname{Tan}[e + f x])^2 \sqrt{c + d \operatorname{Tan}[e + f x]}}$$

Result (type 3, 829 leaves):

$$\frac{1}{f\,(a+i\,a\,\text{Tan}[e+f\,x])^2}\,\text{Sec}[e+f\,x]^2\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$
$$\left(\frac{i\,(4\,c+11\,i\,d)\,\text{Cos}[2\,f\,x]}{16\,(c+i\,d)^3}+\left(\left(3\,i\,c^3\,\text{Cos}[e]-7\,c^2\,d\,\text{Cos}[e]+10\,i\,c\,d^2\,\text{Cos}[e]+32\,d^3\,\text{Cos}[e]+3\,i\,c^2\,d\,\text{Sin}[e]-7\,c\,d^2\,\text{Sin}[e]+10\,i\,d^3\,\text{Sin}[e]\right)\right.\right.$$
$$\left.\left(\frac{1}{16}\,\text{Cos}[2\,e]+\frac{1}{16}\,i\,\text{Sin}[2\,e]\right)\right)\Big/\left((c-i\,d)\,(c+i\,d)^3\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\right)+$$
$$\frac{\text{Cos}[4\,f\,x]\,\left(\frac{1}{16}\,i\,\text{Cos}[2\,e]+\frac{1}{16}\,\text{Sin}[2\,e]\right)}{(c+i\,d)^2}+\frac{(4\,c+11\,i\,d)\,\text{Sin}[2\,f\,x]}{16\,(c+i\,d)^3}+\frac{\left(\frac{1}{16}\,\text{Cos}[2\,e]-\frac{1}{16}\,i\,\text{Sin}[2\,e]\right)\,\text{Sin}[4\,f\,x]}{(c+i\,d)^2}-$$
$$\left.\frac{2\left(\frac{1}{2}\,i\,d^4\,\text{Cos}[2\,e-f\,x]-\frac{1}{2}\,i\,d^4\,\text{Cos}[2\,e+f\,x]-\frac{1}{2}\,d^4\,\text{Sin}[2\,e-f\,x]+\frac{1}{2}\,d^4\,\text{Sin}[2\,e+f\,x]\right)}{(c-i\,d)\,(c+i\,d)^3\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\right)+$$
$$\left(\text{Sec}[e+f\,x]^2\,(\text{Cos}[2\,e]+i\,\text{Sin}[2\,e])\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\right.$$
$$\left(-\left(i\,\left(4\,c^3+14\,i\,c^2\,d-19\,c\,d^2+21\,i\,d^3\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{\sqrt{-c-i\,d}}-\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\right.$$
$$\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)+$$
$$\left(2\left(2\,c^2\,d+7\,i\,c\,d^2+25\,d^3\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{2\,\sqrt{-c-i\,d}}+\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{2\,\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/$$
$$\left.\left.\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/\left(16\,(c-i\,d)\,(c+i\,d)^3\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2\right)$$

- **Problem 1130: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i\,a\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 368 leaves, 11 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{8\,a^3\,(c-i\,d)^{3/2}\,f}+\frac{\left(2\,i\,c^3-12\,c^2\,d-33\,i\,c\,d^2+58\,d^3\right)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{16\,a^3\,(c+i\,d)^{9/2}\,f}+$$

$$\frac{d\,\left(2\,c^3+9\,i\,c^2\,d-17\,c\,d^2+60\,i\,d^3\right)}{16\,a^3\,(c-i\,d)\,(c+i\,d)^4\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-\frac{1}{6\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}+$$

$$\frac{3\,i\,c-10\,d}{24\,a\,(c+i\,d)^2\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}+\frac{6\,c^2+27\,i\,c\,d-56\,d^2}{48\,(i\,c-d)^3\,f\,\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 989 leaves) :

$$\frac{1}{f\,(a+i\,a\,\text{Tan}[e+f\,x])^3}\,\text{Sec}[e+f\,x]^3\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$

$$\left(\frac{\left(18\,c^2+79\,i\,c\,d-118\,d^2\right)\text{Cos}[2\,f\,x]\left(\frac{1}{96}\,i\,\text{Cos}[e]-\frac{\text{Sin}[e]}{96}\right)}{(c+i\,d)^4}+\frac{(9\,c+20\,i\,d)\,\text{Cos}[4\,f\,x]\left(\frac{1}{96}\,i\,\text{Cos}[e]+\frac{\text{Sin}[e]}{96}\right)}{(c+i\,d)^3}+\right.$$

$$\left(\left(11\,c^4\,\text{Cos}[e]+43\,i\,c^3\,d\,\text{Cos}[e]-46\,c^2\,d^2\,\text{Cos}[e]+100\,i\,c\,d^3\,\text{Cos}[e]+192\,d^4\,\text{Cos}[e]+11\,c^3\,d\,\text{Sin}[e]+43\,i\,c^2\,d^2\,\text{Sin}[e]-\right.\right.$$

$$\left.\left.46\,c\,d^3\,\text{Sin}[e]+100\,i\,d^4\,\text{Sin}[e]\right)\left(\frac{1}{96}\,\text{Cos}[3\,e]+\frac{1}{96}\,i\,\text{Sin}[3\,e]\right)\right)\Big/\left((c-i\,d)\,(c+i\,d)^4\,(-i\,c\,\text{Cos}[e]-i\,d\,\text{Sin}[e])\right)+$$

$$\frac{\text{Cos}[6\,f\,x]\left(\frac{1}{48}\,i\,\text{Cos}[3\,e]+\frac{1}{48}\,\text{Sin}[3\,e]\right)}{(c+i\,d)^2}+\frac{\left(18\,c^2+79\,i\,c\,d-118\,d^2\right)\left(\frac{\text{Cos}[e]}{96}+\frac{1}{96}\,i\,\text{Sin}[e]\right)\text{Sin}[2\,f\,x]}{(c+i\,d)^4}+$$

$$\frac{(9\,c+20\,i\,d)\left(\frac{\text{Cos}[e]}{96}-\frac{1}{96}\,i\,\text{Sin}[e]\right)\text{Sin}[4\,f\,x]}{(c+i\,d)^3}+\frac{\left(\frac{1}{48}\,\text{Cos}[3\,e]-\frac{1}{48}\,i\,\text{Sin}[3\,e]\right)\text{Sin}[6\,f\,x]}{(c+i\,d)^2}+$$

$$\left.\frac{2\left(\frac{1}{2}\,d^5\,\text{Cos}[3\,e-f\,x]-\frac{1}{2}\,d^5\,\text{Cos}[3\,e+f\,x]+\frac{1}{2}\,i\,d^5\,\text{Sin}[3\,e-f\,x]-\frac{1}{2}\,i\,d^5\,\text{Sin}[3\,e+f\,x]\right)}{(c-i\,d)\,(c+i\,d)^4\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\right)+$$

$$\Bigg(\text{Sec}[e+f\,x]^3\,(\text{Cos}[3\,e]+i\,\text{Sin}[3\,e])\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3$$

$$\left(-\left(i\left(4\,c^4+18\,i\,c^3\,d-33\,c^2\,d^2-33\,i\,c\,d^3-56\,d^4\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{\sqrt{-c-i\,d}}-\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\right.$$

$$\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\left(1+\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(2\left(2\,c^3\,d+9\,i\,c^2\,d^2-17\,c\,d^3+60\,i\,d^4\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{2\,\sqrt{-c-i\,d}}+\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{2\,\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/$$

$$\left.\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\Bigg)\Big/\left(32\,(c-i\,d)\,(c+i\,d)^4\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^3\right)$$

- **Problem 1131: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^3}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 158 leaves, 5 steps):

$$-\frac{8\,i\,a^3\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{2\,(c+i\,d)\,\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)}{3\,(c-i\,d)\,d\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{4\,a^3\,(i\,c-d)\,(c-4\,i\,d)}{3\,(c-i\,d)^2\,d^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 482 leaves):

$$-\left(4\,i\,\text{Cos}[e+f\,x]^3\,\text{Log}\left[\frac{2\,e^{-2\,i\,e}\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\,\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]\right.$$

$$\left.(\text{Cos}[3\,e]-i\,\text{Sin}[3\,e])\,(a+i\,a\,\text{Tan}[e+f\,x])^3\right)\Big/\left((c-i\,d)^{5/2}\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\right)+\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3}$$

$$\text{Cos}[e+f\,x]^3\,\sqrt{\text{Sec}[e+f\,x]}\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(\frac{(c+i\,d)\,(2\,i\,c\,\text{Cos}[e]+9\,d\,\text{Cos}[e]+i\,d\,\text{Sin}[e])\,\left(\frac{2\,\text{Cos}[3\,e]}{3\,d^2}-\frac{2\,i\,\text{Sin}[3\,e]}{3\,d^2}\right)}{(c-i\,d)^2\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])}+\right.$$

$$\left.\frac{(-i\,c+d)\,\left(\frac{2}{3}\,\text{Cos}[3\,e]-\frac{2}{3}\,i\,\text{Sin}[3\,e]\right)}{(c-i\,d)^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2}+\frac{\left(\frac{2\,\text{Cos}[3\,e]}{3\,d}-\frac{2\,i\,\text{Sin}[3\,e]}{3\,d}\right)\left(-i\,c^2\,\text{Sin}[f\,x]-8\,c\,d\,\text{Sin}[f\,x]-9\,i\,d^2\,\text{Sin}[f\,x]\right)}{(c-i\,d)^2\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\right)(a+i\,a\,\text{Tan}[e+f\,x])^3$$

- **Problem 1132: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^2}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 127 leaves, 5 steps):

$$-\frac{4\,i\,a^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{2\,a^2\,(i\,c-d)}{3\,d\,(i\,c+d)\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{4\,i\,a^2}{(c-i\,d)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 269 leaves):

$$\left(2\,a^2\,(\mathrm{Cos}[2\,e]-\mathrm{i}\,\mathrm{Sin}[2\,e])\,(\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\mathrm{Sin}[e+f\,x])^2\left(-\frac{3\,\mathrm{i}\,\mathrm{Log}\left[\frac{2\left(-\mathrm{i}\,d\,e^{2\,\mathrm{i}\,(e+f\,x)}+c\left(1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)+\sqrt{c-\mathrm{i}\,d}\,\left(1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)\sqrt{c-\frac{\mathrm{i}\,d\left(-1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right)}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{5/2}}+\right.\right.$$

$$\left.\left.\frac{\mathrm{Cos}[e+f\,x]\,\left(\left(c^2+6\,\mathrm{i}\,c\,d+d^2\right)\mathrm{Cos}[e+f\,x]+6\,\mathrm{i}\,d^2\,\mathrm{Sin}[e+f\,x]\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{(c-\mathrm{i}\,d)^2\,d\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}\right)\right)\Big/\left(3\,f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\right)$$

- **Problem 1133: Result more than twice size of optimal antiderivative.**

$$\int\frac{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 109 leaves, 5 steps):

$$-\frac{2\,\mathrm{i}\,a\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{5/2}\,f}-\frac{2\,a}{3\,(\mathrm{i}\,c+d)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,\mathrm{i}\,a}{(c-\mathrm{i}\,d)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 250 leaves):

$$\frac{1}{3\,f}\operatorname{Cos}[e+f\,x]\,(\operatorname{Cos}[e]-i\,\operatorname{Sin}[e])\,(\operatorname{Cos}[f\,x]-i\,\operatorname{Sin}[f\,x])$$

$$(a+i\,a\,\operatorname{Tan}[e+f\,x])\left(-\frac{3\,i\,\operatorname{Log}\left[\frac{2\left(-i\,d\,e^{2\,i\,(e+f\,x)}+c\left(1+e^{2\,i\,(e+f\,x)}\right)+\sqrt{c-i\,d}\,\left(1+e^{2\,i\,(e+f\,x)}\right)\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{5/2}}+\right.$$

$$\left.\frac{2\operatorname{Cos}[e+f\,x]\,((4\,i\,c+d)\operatorname{Cos}[e+f\,x]+3\,i\,d\operatorname{Sin}[e+f\,x])\sqrt{c+d\operatorname{Tan}[e+f\,x]}}{(c-i\,d)^2\,(c\operatorname{Cos}[e+f\,x]+d\operatorname{Sin}[e+f\,x])^2}\right)$$

- **Problem 1134: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i\,a\,\operatorname{Tan}[e+f\,x])\,(c+d\,\operatorname{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 267 leaves, 10 steps):

$$-\frac{i\,\operatorname{ArcTanh}\left[\frac{\sqrt{c+d\operatorname{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{2\,a\,(c-i\,d)^{5/2}\,f}+\frac{(i\,c-6\,d)\,\operatorname{ArcTanh}\left[\frac{\sqrt{c+d\operatorname{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{2\,a\,(c+i\,d)^{7/2}\,f}+\frac{d\,(3\,i\,c+7\,d)}{6\,a\,(i\,c-d)\left(c^2+d^2\right)f\,(c+d\operatorname{Tan}[e+f\,x])^{3/2}}-$$

$$\frac{1}{2\,(i\,c-d)\,f\,(a+i\,a\operatorname{Tan}[e+f\,x])\,(c+d\operatorname{Tan}[e+f\,x])^{3/2}}+\frac{d\left(c^2-14\,i\,c\,d-5\,d^2\right)}{2\,a\,(c-i\,d)^2\,(c+i\,d)^3\,f\sqrt{c+d\operatorname{Tan}[e+f\,x]}}$$

Result (type 3, 863 leaves):

$$\frac{1}{f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])}\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])\,\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\,\Bigg(\frac{\mathrm{Cos}[2\,f\,x]\,\left(\frac{1}{4}\,i\,\mathrm{Cos}[e]+\frac{\mathrm{Sin}[e]}{4}\right)}{(c+i\,d)^3}+$$

$$\Bigg(\left(\frac{\mathrm{Cos}[e]}{12}+\frac{1}{12}\,i\,\mathrm{Sin}[e]\right)\left(3\,i\,c^3\,\mathrm{Cos}[e]+6\,c^2\,d\,\mathrm{Cos}[e]-83\,i\,c\,d^2\,\mathrm{Cos}[e]-24\,d^3\,\mathrm{Cos}[e]+3\,i\,c^2\,d\,\mathrm{Sin}[e]+6\,c\,d^2\,\mathrm{Sin}[e]+5\,i\,d^3\,\mathrm{Sin}[e]\right)\Bigg)\Big/$$

$$\left((c-i\,d)^2\,(c+i\,d)^3\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\right)+\frac{\left(\frac{\mathrm{Cos}[e]}{4}-\frac{1}{4}\,i\,\mathrm{Sin}[e]\right)\mathrm{Sin}[2\,f\,x]}{(c+i\,d)^3}+\frac{-\frac{2}{3}\,i\,d^4\,\mathrm{Cos}[e]+\frac{2}{3}\,d^4\,\mathrm{Sin}[e]}{(c-i\,d)^2\,(c+i\,d)^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}+$$

$$\Bigg(2\,\Bigg(-\frac{11}{2}\,c\,d^3\,\mathrm{Cos}[e-f\,x]+\frac{3}{2}\,i\,d^4\,\mathrm{Cos}[e-f\,x]+\frac{11}{2}\,c\,d^3\,\mathrm{Cos}[e+f\,x]-\frac{3}{2}\,i\,d^4\,\mathrm{Cos}[e+f\,x]-\frac{11}{2}\,i\,c\,d^3\,\mathrm{Sin}[e-f\,x]-\frac{3}{2}\,d^4\,\mathrm{Sin}[e-f\,x]+$$

$$\frac{11}{2}\,i\,c\,d^3\,\mathrm{Sin}[e+f\,x]+\frac{3}{2}\,d^4\,\mathrm{Sin}[e+f\,x]\Bigg)\Bigg)\Big/\left(3\,(c-i\,d)^2\,(c+i\,d)^3\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\right)\Bigg)+$$

$$\Bigg(\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[e]+i\,\mathrm{Sin}[e])\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])\,\Bigg(-\Bigg(i\,\left(2\,c^3+7\,i\,c^2\,d+8\,c\,d^2-7\,i\,d^3\right)\left(\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{\sqrt{-c-i\,d}}-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{\sqrt{-c+i\,d}}\right)$$

$$\mathrm{Sec}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])\Bigg)\Big/\left((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)+$$

$$\Bigg(2\,\left(c^2\,d-14\,i\,c\,d^2-5\,d^3\right)\left(\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{2\,\sqrt{-c-i\,d}}+\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{2\,\sqrt{-c+i\,d}}\right)\mathrm{Sec}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])\Bigg)\Big/$$

$$\left((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)\Bigg)\Bigg)\Big/\left(4\,(c-i\,d)^2\,(c+i\,d)^3\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])\right)$$

- **Problem 1135: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 351 leaves, 11 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{4\,a^2\,(c-i\,d)^{5/2}\,f}+\frac{\left(2\,i\,c^2-14\,c\,d-47\,i\,d^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{8\,a^2\,(c+i\,d)^{9/2}\,f}+$$

$$\frac{d\,\left(6\,c^2+27\,i\,c\,d+49\,d^2\right)}{24\,a^2\,(c-i\,d)\,(c+i\,d)^3\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{2\,i\,c-9\,d}{8\,a^2\,(c+i\,d)^2\,f\,(1+i\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}-$$

$$\frac{1}{4\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{d\,\left(2\,c^3+9\,i\,c^2\,d+88\,c\,d^2-45\,i\,d^3\right)}{8\,a^2\,(c-i\,d)^2\,(c+i\,d)^4\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 1004 leaves) :

$$\frac{1}{f\,(a+i\,a\,\text{Tan}[e+f\,x])^2}\,\text{Sec}[e+f\,x]^2\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$
$$\left(\frac{i\,(4\,c+15\,i\,d)\,\text{Cos}[2\,f\,x]}{16\,(c+i\,d)^4}+\left(\left(9\,i\,c^4\,\text{Cos}[e]-24\,c^3\,d\,\text{Cos}[e]+75\,i\,c^2\,d^2\,\text{Cos}[e]+458\,c\,d^3\,\text{Cos}[e]-192\,i\,d^4\,\text{Cos}[e]+9\,i\,c^3\,d\,\text{Sin}[e]-\right.\right.\right.$$
$$\left.\left.24\,c^2\,d^2\,\text{Sin}[e]+75\,i\,c\,d^3\,\text{Sin}[e]+10\,d^4\,\text{Sin}[e]\right)\left(\frac{1}{48}\,\text{Cos}[2\,e]+\frac{1}{48}\,i\,\text{Sin}[2\,e]\right)\right)\Big/\left((c-i\,d)^2\,(c+i\,d)^4\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\right)+$$
$$\frac{\text{Cos}[4\,f\,x]\,\left(\frac{1}{16}\,i\,\text{Cos}[2\,e]+\frac{1}{16}\,\text{Sin}[2\,e]\right)}{(c+i\,d)^3}+\frac{(4\,c+15\,i\,d)\,\text{Sin}[2\,f\,x]}{16\,(c+i\,d)^4}+\frac{\left(\frac{1}{16}\,\text{Cos}[2\,e]-\frac{1}{16}\,i\,\text{Sin}[2\,e]\right)\,\text{Sin}[4\,f\,x]}{(c+i\,d)^3}+$$
$$\frac{\frac{2}{3}\,d^5\,\text{Cos}[2\,e]+\frac{2}{3}\,i\,d^5\,\text{Sin}[2\,e]}{(c-i\,d)^2\,(c+i\,d)^4\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2}-$$
$$\left(4\left(\frac{7}{2}\,i\,c\,d^4\,\text{Cos}[2\,e-f\,x]+\frac{3}{2}\,d^5\,\text{Cos}[2\,e-f\,x]-\frac{7}{2}\,i\,c\,d^4\,\text{Cos}[2\,e+f\,x]-\frac{3}{2}\,d^5\,\text{Cos}[2\,e+f\,x]-\frac{7}{2}\,c\,d^4\,\text{Sin}[2\,e-f\,x]+\frac{3}{2}\,i\,d^5\,\text{Sin}[2\,e-f\,x]+\right.\right.$$
$$\left.\left.\left.\frac{7}{2}\,c\,d^4\,\text{Sin}[2\,e+f\,x]-\frac{3}{2}\,i\,d^5\,\text{Sin}[2\,e+f\,x]\right)\right)\Big/\left(3\,(c-i\,d)^2\,(c+i\,d)^4\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)\right)+$$
$$\left(\text{Sec}[e+f\,x]^2\,(\text{Cos}[2\,e]+i\,\text{Sin}[2\,e])\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\left(-\left(i\,\left(4\,c^4+18\,i\,c^3\,d-33\,c^2\,d^2+72\,i\,c\,d^3+49\,d^4\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{\sqrt{-c-i\,d}}-\right.\right.\right.\right.$$
$$\left.\left.\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)+$$
$$\left(2\,\left(2\,c^3\,d+9\,i\,c^2\,d^2+88\,c\,d^3-45\,i\,d^4\right)\left(\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{2\,\sqrt{-c-i\,d}}+\frac{\text{ArcTan}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{2\,\sqrt{-c+i\,d}}\right)\text{Sec}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/$$
$$\left.\left.\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(1+\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/\left(16\,(c-i\,d)^2\,(c+i\,d)^4\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2\right)$$

- **Problem 1136: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i\,a\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 446 leaves, 12 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{8\,a^3\,(c-i\,d)^{5/2}\,f}+\frac{\left(2\,i\,c^3-16\,c^2\,d-61\,i\,c\,d^2+152\,d^3\right)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{16\,a^3\,(c+i\,d)^{11/2}\,f}+\frac{d\,\left(6\,c^3+33\,i\,c^2\,d-83\,c\,d^2+154\,i\,d^3\right)}{48\,a^3\,(c-i\,d)\,(c+i\,d)^4\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}-$$

$$\frac{1}{6\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{i\,c-4\,d}{8\,a\,(c+i\,d)^2\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+$$

$$\frac{2\,c^2+11\,i\,c\,d-30\,d^2}{16\,(i\,c-d)^3\,f\,\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{d\,\left(2\,c^4+11\,i\,c^3\,d-26\,c^2\,d^2+253\,i\,c\,d^3+150\,d^4\right)}{16\,a^3\,(c-i\,d)^2\,(c+i\,d)^5\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 1160 leaves) :

$$\frac{1}{f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}\,\mathrm{Sec}[e+f\,x]^3\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$

$$\left(\frac{\left(18\,c^2+103\,i\,c\,d-208\,d^2\right)\mathrm{Cos}[2\,f\,x]\left(\frac{1}{96}\,i\,\mathrm{Cos}[e]-\frac{\mathrm{Sin}[e]}{96}\right)}{(c+i\,d)^5}+\frac{(9\,c+26\,i\,d)\,\mathrm{Cos}[4\,f\,x]\left(\frac{1}{96}\,i\,\mathrm{Cos}[e]+\frac{\mathrm{Sin}[e]}{96}\right)}{(c+i\,d)^4}+\right.$$

$$\left(\left(11\,i\,c^5\,\mathrm{Cos}[e]-50\,c^4\,d\,\mathrm{Cos}[e]-51\,i\,c^3\,d^2\,\mathrm{Cos}[e]-296\,c^2\,d^3\,\mathrm{Cos}[e]+1208\,i\,c\,d^4\,\mathrm{Cos}[e]+576\,d^5\,\mathrm{Cos}[e]+11\,i\,c^4\,d\,\mathrm{Sin}[e]-50\,c^3\,d^2\,\mathrm{Sin}[e]-\right.\right.$$

$$\left.\left.51\,i\,c^2\,d^3\,\mathrm{Sin}[e]-296\,c\,d^4\,\mathrm{Sin}[e]+120\,i\,d^5\,\mathrm{Sin}[e]\right)\left(\frac{1}{96}\,\mathrm{Cos}[3\,e]+\frac{1}{96}\,i\,\mathrm{Sin}[3\,e]\right)\right)\Big/\left((c-i\,d)^2\,(c+i\,d)^5\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\right)+$$

$$\frac{\mathrm{Cos}[6\,f\,x]\left(\frac{1}{48}\,i\,\mathrm{Cos}[3\,e]+\frac{1}{48}\,\mathrm{Sin}[3\,e]\right)}{(c+i\,d)^3}+\frac{\left(18\,c^2+103\,i\,c\,d-208\,d^2\right)\left(\frac{\mathrm{Cos}[e]}{96}+\frac{1}{96}\,i\,\mathrm{Sin}[e]\right)\mathrm{Sin}[2\,f\,x]}{(c+i\,d)^5}+$$

$$\frac{(9\,c+26\,i\,d)\left(\frac{\mathrm{Cos}[e]}{96}-\frac{1}{96}\,i\,\mathrm{Sin}[e]\right)\mathrm{Sin}[4\,f\,x]}{(c+i\,d)^4}+\frac{\left(\frac{1}{48}\,\mathrm{Cos}[3\,e]-\frac{1}{48}\,i\,\mathrm{Sin}[3\,e]\right)\mathrm{Sin}[6\,f\,x]}{(c+i\,d)^3}+$$

$$\frac{\frac{2}{3}\,i\,d^6\,\mathrm{Cos}[3\,e]-\frac{2}{3}\,d^6\,\mathrm{Sin}[3\,e]}{(c-i\,d)^2\,(c+i\,d)^5\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}+\left(2\left(\frac{17}{2}\,c\,d^5\,\mathrm{Cos}[3\,e-f\,x]-\frac{9}{2}\,i\,d^6\,\mathrm{Cos}[3\,e-f\,x]-\frac{17}{2}\,c\,d^5\,\mathrm{Cos}[3\,e+f\,x]+\right.\right.$$

$$\left.\left.\frac{9}{2}\,i\,d^6\,\mathrm{Cos}[3\,e+f\,x]+\frac{17}{2}\,i\,c\,d^5\,\mathrm{Sin}[3\,e-f\,x]+\frac{9}{2}\,d^6\,\mathrm{Sin}[3\,e-f\,x]-\frac{17}{2}\,i\,c\,d^5\,\mathrm{Sin}[3\,e+f\,x]-\frac{9}{2}\,d^6\,\mathrm{Sin}[3\,e+f\,x]\right)\right)\Big/$$

$$\left.\left(3\,(c-i\,d)^2\,(c+i\,d)^5\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\right)\right)+\left(\mathrm{Sec}[e+f\,x]^3\,(\mathrm{Cos}[3\,e]+i\,\mathrm{Sin}[3\,e])\right.$$

$$(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\left(-\left(i\left(4\,c^5+22\,i\,c^4\,d-51\,c^3\,d^2-66\,i\,c^2\,d^3-233\,c\,d^4+154\,i\,d^5\right)\left(\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{\sqrt{-c-i\,d}}-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{\sqrt{-c+i\,d}}\right)\right.\right.$$

$$\left.\mathrm{Sec}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])\right)\Big/\left((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(2\left(2\,c^4\,d+11\,i\,c^3\,d^2-26\,c^2\,d^3+253\,i\,c\,d^4+150\,d^5\right)\left(\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c-i\,d}}\right]}{2\,\sqrt{-c-i\,d}}+\frac{\mathrm{ArcTan}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{-c+i\,d}}\right]}{2\,\sqrt{-c+i\,d}}\right)\mathrm{Sec}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])\right)\Big/$$

$$\left.\left.\left((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\left(1+\mathrm{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/\left(32\,(c-i\,d)^2\,(c+i\,d)^5\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)$$

Problem 1137: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^{5/2} \sqrt{c+d \operatorname{Tan}[e+f x]}\, dx$$

Optimal (type 3, 263 leaves, 9 steps):

$$-\frac{(-1)^{1/4} a^{5/2} \left(c^2+10 i c d+23 d^2\right) \operatorname{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a+i a \operatorname{Tan}[e+f x]}}{\sqrt{a} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{4 d^{3/2} f}-\frac{4 i \sqrt{2} a^{5/2} \sqrt{c-i d} \operatorname{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d} \sqrt{a+i a \operatorname{Tan}[e+f x]}}\right]}{f}+$$
$$\frac{a^2 (c+9 i d) \sqrt{a+i a \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}}{4 d f}-\frac{a^2 \sqrt{a+i a \operatorname{Tan}[e+f x]} (c+d \operatorname{Tan}[e+f x])^{3/2}}{2 d f}$$

Result (type 3, 589 leaves):

$$\frac{1}{f (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^2}$$
$$\left(\frac{1}{8}+\frac{i}{8}\right) \operatorname{Cos}[e+f x]^2 (a+i a \operatorname{Tan}[e+f x])^{5/2} \left(-\frac{1}{d^{3/2} \sqrt{1+\operatorname{Cos}[2 (e+f x)]+i \operatorname{Sin}[2 (e+f x)]}} \operatorname{Cos}[e+f x] \left(\left(c^2+10 i c d+23 d^2\right)\right.\right.$$
$$\left(\operatorname{Log}\left[\left((2+2 i) e^{\frac{i e}{2}} \left(-i d+d e^{i (e+f x)}+i c \left(i+e^{i (e+f x)}\right)-(1+i) \sqrt{d} \sqrt{1+e^{2 i (e+f x)}} \sqrt{c-\frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right)\Big/ \left(\sqrt{d}\right.\right.\right.$$
$$\left.\left.\left(c^2+10 i c d+23 d^2\right) \left(i+e^{i (e+f x)}\right)\right)\right]-\operatorname{Log}\left[\left((2+2 i) e^{\frac{i e}{2}} \left(c+i d+i c e^{i (e+f x)}+d e^{i (e+f x)}+\right.\right.\right.$$
$$\left.\left.\left.\left.(1+i) \sqrt{d} \sqrt{1+e^{2 i (e+f x)}} \sqrt{c-\frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right)\Big/ \left(\sqrt{d} \left(c^2+10 i c d+23 d^2\right) \left(-i+e^{i (e+f x)}\right)\right)\right]\right)+(32+32 i) \sqrt{c-i d}$$
$$\left.d^{3/2} \operatorname{Log}\left[2 \left(\sqrt{c-i d} \operatorname{Cos}[e+f x]+i \sqrt{c-i d} \operatorname{Sin}[e+f x]+\sqrt{1+\operatorname{Cos}[2 (e+f x)]+i \operatorname{Sin}[2 (e+f x)]} \sqrt{c+d \operatorname{Tan}[e+f x]}\right)\right]\right)$$
$$\left.(\operatorname{Cos}[2 e]-i \operatorname{Sin}[2 e])+\frac{(1+i) (i \operatorname{Cos}[2 e]+\operatorname{Sin}[2 e]) \sqrt{c+d \operatorname{Tan}[e+f x]} (c-9 i d+2 d \operatorname{Tan}[e+f x])}{d}\right)$$

Problem 1138: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^{3/2} \sqrt{c+d \operatorname{Tan}[e+f x]}\, dx$$

Optimal (type 3, 250 leaves, 9 steps):

$$-\frac{(-1)^{1/4} a^{3/2} (i c+3 d) \text{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a+i a \text{Tan}[e+f x]}}{\sqrt{a} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{\sqrt{d} f}-\frac{2 i \sqrt{2} a^{3/2} \sqrt{c-i d} \text{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d} \sqrt{a+i a \text{Tan}[e+f x]}}\right]}{f}+\frac{a^2 (c+i d) \sqrt{c+d \text{Tan}[e+f x]}}{d f \sqrt{a+i a \text{Tan}[e+f x]}}-\frac{a^2 (c+d \text{Tan}[e+f x])^{3/2}}{d f \sqrt{a+i a \text{Tan}[e+f x]}}$$

Result (type 3, 559 leaves):

$$\frac{1}{f}\left(\frac{1}{2}+\frac{i}{2}\right) \text{Cos}[e+f x] (\text{Cos}[f x]-i \text{Sin}[f x]) (a+i a \text{Tan}[e+f x])^{3/2}$$
$$\left(\frac{1}{\sqrt{d} \sqrt{1+\text{Cos}[2 (e+f x)]+i \text{Sin}[2 (e+f x)]}} \text{Cos}[e+f x] \left((-i c-3 d) \text{Log}\left[\left((2+2 i) e^{\frac{i e}{2}}\right.\right.\right.\right.$$
$$\left.\left.\left(-i d+d e^{i (e+f x)}+i c \left(i+e^{i (e+f x)}\right)-(1+i) \sqrt{d} \sqrt{1+e^{2 i (e+f x)}} \sqrt{c-\frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right) \Big/ \left(\sqrt{d} (i c+3 d) \left(i+e^{i (e+f x)}\right)\right)\right]+$$
$$(i c+3 d) \text{Log}\left[\left((2+2 i) e^{\frac{i e}{2}} \left(c+i d+i c e^{i (e+f x)}+d e^{i (e+f x)}+(1+i) \sqrt{d} \sqrt{1+e^{2 i (e+f x)}} \sqrt{c-\frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right) \Big/\right.$$
$$\left.\left(\sqrt{d} (i c+3 d) \left(-i+e^{i (e+f x)}\right)\right)\right]-(4+4 i) \sqrt{c-i d} \sqrt{d}$$
$$\left.\left.\text{Log}\left[2 \left(\sqrt{c-i d} \text{Cos}[e+f x]+i \sqrt{c-i d} \text{Sin}[e+f x]+\sqrt{1+\text{Cos}[2 (e+f x)]+i \text{Sin}[2 (e+f x)]} \sqrt{c+d \text{Tan}[e+f x]}\right)\right]\right)\right)$$
$$\left.(\text{Cos}[e]-i \text{Sin}[e])+(1+i) \text{Cos}[e] \sqrt{c+d \text{Tan}[e+f x]}+(1-i) \text{Sin}[e] \sqrt{c+d \text{Tan}[e+f x]}\right)$$

Problem 1139: Result more than twice size of optimal antiderivative.

$$\int \sqrt{a+i a \text{Tan}[e+f x]} \sqrt{c+d \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 151 leaves, 7 steps):

$$-\frac{2 (-1)^{1/4} \sqrt{a} \sqrt{d} \text{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a+i a \text{Tan}[e+f x]}}{\sqrt{a} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{f}-\frac{i \sqrt{2} \sqrt{a} \sqrt{c-i d} \text{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d} \sqrt{a+i a \text{Tan}[e+f x]}}\right]}{f}$$

Result (type 3, 442 leaves):

$$-\frac{1}{f}\left(\frac{1}{2}+\frac{i}{2}\right) e^{-i(e+fx)}\sqrt{1+e^{2i(e+fx)}}\left((1+i)\sqrt{c-id}\,\mathrm{Log}\left[2\left(\sqrt{c-id}\,e^{i(e+fx)}+\sqrt{1+e^{2i(e+fx)}}\sqrt{c-\frac{id\left(-1+e^{2i(e+fx)}\right)}{1+e^{2i(e+fx)}}}\right)\right]+\sqrt{d}\left(\mathrm{Log}\left[\frac{1}{d^{3/2}\left(i+e^{i(e+fx)}\right)}(1+i)\,e^{\frac{ie}{2}}\left(-id+d\,e^{i(e+fx)}+ic\left(i+e^{i(e+fx)}\right)-(1+i)\sqrt{d}\sqrt{1+e^{2i(e+fx)}}\sqrt{c-\frac{id\left(-1+e^{2i(e+fx)}\right)}{1+e^{2i(e+fx)}}}\right)\right]-\mathrm{Log}\left[\frac{1}{d^{3/2}\left(-i+e^{i(e+fx)}\right)}(1+i)\,e^{\frac{ie}{2}}\left(c+id+ic\,e^{i(e+fx)}+d\,e^{i(e+fx)}+(1+i)\sqrt{d}\sqrt{1+e^{2i(e+fx)}}\sqrt{c-\frac{id\left(-1+e^{2i(e+fx)}\right)}{1+e^{2i(e+fx)}}}\right)\right]\right)\right)\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}$$

- **Problem 1143: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\mathrm{Tan}[e+fx])^{5/2}\,(c+d\,\mathrm{Tan}[e+fx])^{3/2}\,dx$$

Optimal (type 3, 329 leaves, 10 steps):

$$-\frac{(-1)^{1/4}a^{5/2}(c-3id)\left(c^2+18icd+15d^2\right)\mathrm{ArcTanh}\left[\frac{(-1)^{3/4}\sqrt{d}\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}}{\sqrt{a}\sqrt{c+d\,\mathrm{Tan}[e+fx]}}\right]}{8d^{3/2}f}-\frac{4i\sqrt{2}\,a^{5/2}(c-id)^{3/2}\mathrm{ArcTanh}\left[\frac{\sqrt{2}\sqrt{a}\sqrt{c+d\,\mathrm{Tan}[e+fx]}}{\sqrt{c-id}\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}}\right]}{f}+\frac{a^2\left(c^2+14icd+19d^2\right)\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}\sqrt{c+d\,\mathrm{Tan}[e+fx]}}{8df}+\frac{a^2(c+13id)\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}\,(c+d\,\mathrm{Tan}[e+fx])^{3/2}}{12df}-\frac{a^2\sqrt{a+i\,a\,\mathrm{Tan}[e+fx]}\,(c+d\,\mathrm{Tan}[e+fx])^{5/2}}{3df}$$

Result (type 3, 758 leaves):

$$\left(\left(\frac{1}{16}-\frac{\mathrm{i}}{16}\right)\mathrm{Cos}[e+f\,x]^3\left(\left(-\mathrm{i}\,c^3+15\,c^2\,d-69\,\mathrm{i}\,c\,d^2-45\,d^3\right)\right.\right.$$

$$\left(\mathrm{Log}\left[\left((2+2\,\mathrm{i})\,\mathrm{e}^{\frac{\mathrm{i}\,e}{2}}\left(-\mathrm{i}\,d+d\,\mathrm{e}^{\mathrm{i}\,(e+f\,x)}+\mathrm{i}\,c\left(\mathrm{i}+\mathrm{e}^{\mathrm{i}\,(e+f\,x)}\right)-(1+\mathrm{i})\sqrt{d}\,\sqrt{1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\left(-1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right)\Big/\right.\right.$$

$$\left.\left.\left(\sqrt{d}\,\left(\mathrm{i}\,c^3-15\,c^2\,d+69\,\mathrm{i}\,c\,d^2+45\,d^3\right)\left(\mathrm{i}+\mathrm{e}^{\mathrm{i}\,(e+f\,x)}\right)\right)\right]-\right.$$

$$\mathrm{Log}\left[\left((2+2\,\mathrm{i})\,\mathrm{e}^{\frac{\mathrm{i}\,e}{2}}\left(c+\mathrm{i}\,d+\mathrm{i}\,c\,\mathrm{e}^{\mathrm{i}\,(e+f\,x)}+d\,\mathrm{e}^{\mathrm{i}\,(e+f\,x)}+(1+\mathrm{i})\sqrt{d}\,\sqrt{1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\left(-1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+\mathrm{e}^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right)\Big/\right.$$

$$\left.\left.\left(\sqrt{d}\,\left(\mathrm{i}\,c^3-15\,c^2\,d+69\,\mathrm{i}\,c\,d^2+45\,d^3\right)\left(-\mathrm{i}+\mathrm{e}^{\mathrm{i}\,(e+f\,x)}\right)\right)\right]\right)+(64-64\,\mathrm{i})\,(c-\mathrm{i}\,d)^{3/2}\,d^{3/2}$$

$$\left.\mathrm{Log}\left[2\left(\sqrt{c-\mathrm{i}\,d}\,\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\sqrt{c-\mathrm{i}\,d}\,\mathrm{Sin}[e+f\,x]+\sqrt{1+\mathrm{Cos}[2\,e+2\,f\,x]+\mathrm{i}\,\mathrm{Sin}[2\,e+2\,f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\right]\right)$$

$$\left.(\mathrm{Cos}[2\,e]-\mathrm{i}\,\mathrm{Sin}[2\,e])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\right)\Big/\left(d^{3/2}\right.$$

$$f$$

$$(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2$$

$$\left.\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+\mathrm{i}\,\mathrm{Sin}[2\,(e+f\,x)]}\right)+$$

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2}\mathrm{Cos}[e+f\,x]^2$$

$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$

$$\left(\left(-3\,c^2+82\,\mathrm{i}\,c\,d+91\,d^2\right)\left(\frac{\mathrm{Cos}[2\,e]}{24\,d}-\frac{\mathrm{i}\,\mathrm{Sin}[2\,e]}{24\,d}\right)+\right.$$

$$\mathrm{Sec}[e+f\,x]^2\left(-\frac{1}{3}\,d\,\mathrm{Cos}[2\,e]+\frac{1}{3}\,\mathrm{i}\,d\,\mathrm{Sin}[2\,e]\right)+$$

$$\left.(7\,c-13\,\mathrm{i}\,d)\,\mathrm{Sec}[e+f\,x]\left(-\frac{1}{12}\,\mathrm{i}\,\mathrm{Cos}[3\,e+f\,x]-\frac{1}{12}\,\mathrm{Sin}[3\,e+f\,x]\right)\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{5/2}$$

Problem 1145: Result more than twice size of optimal antiderivative.

$$\int \sqrt{a + i a \operatorname{Tan}[e + f x]} \, (c + d \operatorname{Tan}[e + f x])^{3/2} \, dx$$

Optimal (type 3, 196 leaves, 8 steps):

$$-\frac{(-1)^{1/4} \sqrt{a} \, (3 c - i d) \sqrt{d} \operatorname{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a + i a \operatorname{Tan}[e + f x]}}{\sqrt{a} \sqrt{c + d \operatorname{Tan}[e + f x]}}\right]}{f} - \frac{i \sqrt{2} \sqrt{a} \, (c - i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c + d \operatorname{Tan}[e + f x]}}{\sqrt{c - i d} \sqrt{a + i a \operatorname{Tan}[e + f x]}}\right]}{f} + \frac{d \sqrt{a + i a \operatorname{Tan}[e + f x]} \sqrt{c + d \operatorname{Tan}[e + f x]}}{f}$$

Result (type 3, 507 leaves):

$$\frac{1}{f}\left(\frac{1}{2} + \frac{i}{2}\right) \sqrt{a + i a \operatorname{Tan}[e + f x]} \left(-\frac{1}{\sqrt{1 + \operatorname{Cos}[2 (e + f x)] + i \operatorname{Sin}[2 (e + f x)]}} \operatorname{Cos}[e + f x] \left((3 c - i d) \sqrt{d} \operatorname{Log}\left[\left((2 + 2 i) e^{\frac{i e}{2}} \left(d + i d e^{i (e + f x)} - c \left(i + e^{i (e + f x)}\right) + (1 - i) \sqrt{d} \sqrt{1 + e^{2 i (e + f x)}} \sqrt{c - \frac{i d \left(-1 + e^{2 i (e + f x)}\right)}{1 + e^{2 i (e + f x)}}}\right)\right) \Big/ \left(d^{3/2} (3 i c + d) \left(i + e^{i (e + f x)}\right)\right)\right] + i \sqrt{d} \, (3 i c + d) \operatorname{Log}\left[\left((2 + 2 i) e^{\frac{i e}{2}} \left(c + i d + i c e^{i (e + f x)} + d e^{i (e + f x)} + (1 + i) \sqrt{d} \sqrt{1 + e^{2 i (e + f x)}} \sqrt{c - \frac{i d \left(-1 + e^{2 i (e + f x)}\right)}{1 + e^{2 i (e + f x)}}}\right)\right) \Big/ \left((3 c - i d) d^{3/2} \left(-i + e^{i (e + f x)}\right)\right)\right] + (2 + 2 i) (c - i d)^{3/2} \operatorname{Log}\left[2 \left(\sqrt{c - i d} \operatorname{Cos}[e + f x] + i \sqrt{c - i d} \operatorname{Sin}[e + f x] + \sqrt{1 + \operatorname{Cos}[2 (e + f x)] + i \operatorname{Sin}[2 (e + f x)]} \sqrt{c + d \operatorname{Tan}[e + f x]}\right)\right]\right) + (1 - i) d \sqrt{c + d \operatorname{Tan}[e + f x]}\right)$$

Problem 1146: Result more than twice size of optimal antiderivative.

$$\int \frac{(c + d \operatorname{Tan}[e + f x])^{3/2}}{\sqrt{a + i a \operatorname{Tan}[e + f x]}} \, dx$$

Optimal (type 3, 195 leaves, 8 steps):

$$\frac{2 (-1)^{3/4} d^{3/2} \operatorname{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a + i a \operatorname{Tan}[e + f x]}}{\sqrt{a} \sqrt{c + d \operatorname{Tan}[e + f x]}}\right]}{\sqrt{a} \, f} - \frac{i (c - i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c + d \operatorname{Tan}[e + f x]}}{\sqrt{c - i d} \sqrt{a + i a \operatorname{Tan}[e + f x]}}\right]}{\sqrt{2} \sqrt{a} \, f} + \frac{(i c - d) \sqrt{c + d \operatorname{Tan}[e + f x]}}{f \sqrt{a + i a \operatorname{Tan}[e + f x]}}$$

Result (type 3, 518 leaves):

$$\frac{1}{2\,f\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\sqrt{\text{Sec}[e+f\,x]}\left(\sqrt{2}\,\sqrt{\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\left(-i\,(c-i\,d)^{3/2}\,\text{Log}\left[2\left(\sqrt{c-i\,d}\;e^{i\,(e+f\,x)}+\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right]-\right.\right.$$

$$(1-i)\,d^{3/2}\left(\text{Log}\left[\frac{1}{d^{5/2}\left(i+e^{i\,(e+f\,x)}\right)}\left(\frac{1}{2}+\frac{i}{2}\right)e^{\frac{i\,e}{2}}\left(d+i\,d\,e^{i\,(e+f\,x)}-c\left(i+e^{i\,(e+f\,x)}\right)+(1-i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right]-\right.$$

$$\text{Log}\left[-\frac{1}{d^{5/2}\left(-i+e^{i\,(e+f\,x)}\right)}\left(\frac{1}{2}-\frac{i}{2}\right)e^{\frac{i\,e}{2}}\right.$$

$$\left.\left.\left.\left(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right]\right)\right)+\frac{2\,i\,(c+i\,d)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{\text{Sec}[e+f\,x]}}\right)$$

Problem 1149: Result more than twice size of optimal antiderivative.

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(c+d\,\text{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 415 leaves, 11 steps):

$$-\frac{(-1)^{1/4}\,a^{5/2}\left(5\,c^4+100\,i\,c^3\,d+690\,c^2\,d^2-900\,i\,c\,d^3-363\,d^4\right)\text{ArcTanh}\left[\frac{(-1)^{3/4}\,\sqrt{d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{64\,d^{3/2}\,f}-$$

$$\frac{4\,i\,\sqrt{2}\,a^{5/2}\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\right]}{f}+\frac{a^2\left(5\,c^3+95\,i\,c^2\,d+273\,c\,d^2-149\,i\,d^3\right)\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{64\,d\,f}+$$

$$\frac{a^2\left(5\,c^2+90\,i\,c\,d+107\,d^2\right)\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{96\,d\,f}+$$

$$\frac{a^2\,(c+17\,i\,d)\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{24\,d\,f}-\frac{a^2\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{4\,d\,f}$$

Result (type 3, 849 leaves):

$$-\left(\left(\left(\frac{1}{128}+\frac{i}{128}\right)\text{Cos}[e+f\,x]^3\right.\right.$$

$$\Big(\big(5\,c^4+100\,i\,c^3\,d+690\,c^2\,d^2-900\,i\,c\,d^3-363\,d^4\big)\,\Big(\mathrm{Log}\Big[\Big((2+2\,i)\,e^{\frac{i\,e}{2}}\,\Big(c+i\,d-i\,c\,e^{i\,(e+f\,x)}-d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}$$

$$\sqrt{c-\frac{i\,d\,\big(-1+e^{2\,i\,(e+f\,x)}\big)}{1+e^{2\,i\,(e+f\,x)}}}\Big)\Big)\Big/\Big(\sqrt{d}\,\big(-5\,c^4-100\,i\,c^3\,d-690\,c^2\,d^2+900\,i\,c\,d^3+363\,d^4\big)\,\big(i+e^{i\,(e+f\,x)}\big)\Big)\Big]-$$

$$\mathrm{Log}\Big[-\Big((2+2\,i)\,e^{\frac{i\,e}{2}}\,\Big(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\big(-1+e^{2\,i\,(e+f\,x)}\big)}{1+e^{2\,i\,(e+f\,x)}}}\Big)\Big)\Big/$$

$$\Big(\sqrt{d}\,\big(-5\,c^4-100\,i\,c^3\,d-690\,c^2\,d^2+900\,i\,c\,d^3+363\,d^4\big)\,\big(-i+e^{i\,(e+f\,x)}\big)\Big)\Big]\Big)+(512+512\,i)\,(c-i\,d)^{5/2}\,d^{3/2}$$

$$\mathrm{Log}\Big[2\,\Big(\sqrt{c-i\,d}\,\mathrm{Cos}[e+f\,x]+i\,\sqrt{c-i\,d}\,\mathrm{Sin}[e+f\,x]+\sqrt{1+\mathrm{Cos}[2\,e+2\,f\,x]+i\,\mathrm{Sin}[2\,e+2\,f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Big)\Big]\Big)$$

$$(\mathrm{Cos}[2\,e]-i\,\mathrm{Sin}[2\,e])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\Big)\Big/\Big(d^{3/2}\,f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2$$

$$\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+i\,\mathrm{Sin}[2\,(e+f\,x)]}\Big)+$$

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2}\,\mathrm{Cos}[e+f\,x]^2\,\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$

$$\Big(\big(-15\,c^3+719\,i\,c^2\,d+1621\,c\,d^2-845\,i\,d^3\big)\,\Big(\frac{\mathrm{Cos}[2\,e]}{192\,d}-\frac{i\,\mathrm{Sin}[2\,e]}{192\,d}\Big)+$$

$$(17\,i\,c+23\,d)\,\mathrm{Sec}[e+f\,x]^2\,\Big(\frac{1}{24}\,i\,d\,\mathrm{Cos}[2\,e]+\frac{1}{24}\,d\,\mathrm{Sin}[2\,e]\Big)+$$

$$\big(59\,c^2-226\,i\,c\,d-131\,d^2\big)\,\mathrm{Sec}[e+f\,x]\,\Big(-\frac{1}{96}\,i\,\mathrm{Cos}[3\,e+f\,x]-\frac{1}{96}\,\mathrm{Sin}[3\,e+f\,x]\Big)+$$

$$\mathrm{Sec}[e+f\,x]^3\,\Big(-\frac{1}{4}\,i\,d^2\,\mathrm{Cos}[3\,e+f\,x]-\frac{1}{4}\,d^2\,\mathrm{Sin}[3\,e+f\,x]\Big)\Big)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}$$

- **Problem 1151: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 257 leaves, 9 steps) :

$$-\frac{(-1)^{1/4}\sqrt{a}\,\sqrt{d}\,\left(15\,c^2-10\,i\,c\,d-7\,d^2\right)\mathrm{ArcTanh}\left[\frac{(-1)^{3/4}\sqrt{d}\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{4\,f}-\frac{i\,\sqrt{2}\,\sqrt{a}\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{(7\,c-i\,d)\,d\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{4\,f}+\frac{d\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{2\,f}$$

Result (type 3, 539 leaves) :

$$\frac{1}{f}\left(\frac{1}{8}+\frac{i}{8}\right)\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\left(-\frac{1}{\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+i\,\mathrm{Sin}[2\,(e+f\,x)]}}\mathrm{Cos}[e+f\,x]\left(\sqrt{d}\,\left(15\,c^2-10\,i\,c\,d-7\,d^2\right)\left(\mathrm{Log}\left[\left((2+2\,i)\,e^{\frac{i\,e}{2}}\left(c+i\,d-i\,c\,e^{i\,(e+f\,x)}-d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\left(d^{3/2}\,\left(-15\,c^2+10\,i\,c\,d+7\,d^2\right)\left(i+e^{i\,(e+f\,x)}\right)\right)\right]-\mathrm{Log}\left[-\left((2+2\,i)\,e^{\frac{i\,e}{2}}\left(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\left(d^{3/2}\,\left(-15\,c^2+10\,i\,c\,d+7\,d^2\right)\left(-i+e^{i\,(e+f\,x)}\right)\right)\right]\right)+(8+8\,i)\,(c-i\,d)^{5/2}\,\mathrm{Log}\left[2\left(\sqrt{c-i\,d}\,\mathrm{Cos}[e+f\,x]+i\,\sqrt{c-i\,d}\,\mathrm{Sin}[e+f\,x]+\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+i\,\mathrm{Sin}[2\,(e+f\,x)]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\right]\right)+(1-i)\,d\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,(9\,c-i\,d+2\,d\,\mathrm{Tan}[e+f\,x])\right)$$

- **Problem 1152: Result more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 250 leaves, 9 steps) :

$$\frac{(-1)^{1/4}\,(5\,i\,c-d)\,d^{3/2}\,\text{ArcTanh}\left[\frac{(-1)^{3/4}\sqrt{d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{a}\,f}-\frac{i\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{2}\,\sqrt{a}\,f}-\frac{(c+2\,i\,d)\,d\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{a\,f}+\frac{(i\,c-d)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{f\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 549 leaves) :

$$\frac{1}{f\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\left(\frac{1}{2}+\frac{i}{2}\right)(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\left(-\frac{1}{\sqrt{1+\text{Cos}[2\,(e+f\,x)]+i\,\text{Sin}[2\,(e+f\,x)]}}\left(d^{3/2}\,(-5\,i\,c+d)\left(\text{Log}\left[\left((1+i)\,e^{\frac{i\,e}{2}}\left(-i\,d+d\,e^{i\,(e+f\,x)}+i\,c\left(i+e^{i\,(e+f\,x)}\right)-(1+i)\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\left(d^{5/2}\,(-5\,i\,c+d)\left(i+e^{i\,(e+f\,x)}\right)\right)\right]-\text{Log}\left[\left((1+i)\,e^{\frac{i\,e}{2}}\left(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\left(d^{5/2}\,(-5\,i\,c+d)\left(-i+e^{i\,(e+f\,x)}\right)\right)\right]\right)+(1+i)\,(c-i\,d)^{5/2}\,\text{Log}\left[2\left(\sqrt{c-i\,d}\,\text{Cos}[e+f\,x]+i\sqrt{c-i\,d}\,\text{Sin}[e+f\,x]+\sqrt{1+\text{Cos}[2\,(e+f\,x)]+i\,\text{Sin}[2\,(e+f\,x)]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\right]\right)(\text{Cos}[e]+i\,\text{Sin}[e])+(1+i)\,(\text{Cos}[f\,x]-i\,\text{Sin}[f\,x])\sqrt{c+d\,\text{Tan}[e+f\,x]}\left(c^2+2\,i\,c\,d-2\,d^2-i\,d^2\,\text{Tan}[e+f\,x]\right)\right)$$

■ Problem 1153: Result more than twice size of optimal antiderivative.

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 257 leaves, 9 steps) :

$$\frac{2\,(-1)^{1/4}\,d^{5/2}\,\text{ArcTanh}\left[\frac{(-1)^{3/4}\sqrt{d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{a^{3/2}\,f}-\frac{i\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\right]}{2\sqrt{2}\,a^{3/2}\,f}+\frac{(c+i\,d)\,(i\,c+3\,d)\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,a\,f\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}+\frac{(i\,c-d)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{3\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}$$

Result (type 3, 560 leaves):

$$\frac{1}{2\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2\left(\frac{1}{\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+i\,\mathrm{Sin}[2\,(e+f\,x)]}}\left((2+2\,i)\,d^{5/2}\,\mathrm{Log}\left[\frac{1}{d^{7/2}\,\left(i+e^{i\,(e+f\,x)}\right)}\left(\frac{1}{4}+\frac{i}{4}\right)e^{\frac{i\,e}{2}}\left(c+i\,d-i\,c\,e^{i\,(e+f\,x)}-d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right]-(2+2\,i)\,d^{5/2}\,\mathrm{Log}\left[-\frac{1}{d^{7/2}\,\left(-i+e^{i\,(e+f\,x)}\right)}\left(\frac{1}{4}+\frac{i}{4}\right)e^{\frac{i\,e}{2}}\left(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right]-i\,(c-i\,d)^{5/2}\,\mathrm{Log}\left[2\left(\sqrt{c-i\,d}\,\mathrm{Cos}[e+f\,x]+i\,\sqrt{c-i\,d}\,\mathrm{Sin}[e+f\,x]+\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+i\,\mathrm{Sin}[2\,(e+f\,x)]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\right]\right)(\mathrm{Cos}[2\,e]+i\,\mathrm{Sin}[2\,e])+\frac{1}{3}\,(c+i\,d)\,(i\,\mathrm{Cos}[2\,f\,x]+\mathrm{Sin}[2\,f\,x])\,((5\,c-9\,i\,d)\,\mathrm{Cos}[e+f\,x]+(3\,i\,c+11\,d)\,\mathrm{Sin}[e+f\,x])\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)$$

Problem 1155: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 200 leaves, 8 steps):

$$-\frac{(-1)^{1/4}\,a^{5/2}\,(c+5\,i\,d)\,\mathrm{ArcTanh}\left[\frac{(-1)^{3/4}\,\sqrt{d}\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{d^{3/2}\,f}-\frac{4\,i\,\sqrt{2}\,a^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}-\frac{a^2\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{d\,f}$$

Result (type 3, 602 leaves):

$$\frac{1}{d^{3/2} f\, (\mathrm{Cos}[f x] + i\, \mathrm{Sin}[f x])^2} \left(\frac{1}{2} + \frac{i}{2}\right) \mathrm{Cos}[e + f x]^2\, (a + i\, a\, \mathrm{Tan}[e + f x])^{5/2}$$

$$\left(\frac{1}{\sqrt{c - i d}\, \sqrt{1 + \mathrm{Cos}[2 (e + f x)] + i\, \mathrm{Sin}[2 (e + f x)]}} \mathrm{Cos}[e + f x] \left(\sqrt{c - i d}\, (c + 5 i d)\, \mathrm{Log}\left[\left((2 + 2 i)\, e^{\frac{i e}{2}}\right.\right.\right.$$

$$\left.\left.\left(-i d + d\, e^{i (e+f x)} + i c \left(i + e^{i (e+f x)}\right) - (1 + i) \sqrt{d} \sqrt{1 + e^{2 i (e+f x)}} \sqrt{c - \frac{i d \left(-1 + e^{2 i (e+f x)}\right)}{1 + e^{2 i (e+f x)}}}\right)\right) \Big/ \left(\sqrt{d}\, (-i c + 5 d) \left(i + e^{i (e+f x)}\right)\right)\right] -$$

$$\sqrt{c - i d}\, (c + 5 i d)\, \mathrm{Log}\left[\left((2 + 2 i)\, e^{\frac{i e}{2}} \left(c + i d + i c\, e^{i (e+f x)} + d\, e^{i (e+f x)} + (1 + i) \sqrt{d} \sqrt{1 + e^{2 i (e+f x)}} \sqrt{c - \frac{i d \left(-1 + e^{2 i (e+f x)}\right)}{1 + e^{2 i (e+f x)}}}\right)\right) \Big/\right.$$

$$\left.\left(\sqrt{d}\, (-i c + 5 d) \left(-i + e^{i (e+f x)}\right)\right)\right] +$$

$$\left.(8 + 8 i)\, d^{3/2}\, \mathrm{Log}\left[2 \left(\sqrt{c - i d}\, \mathrm{Cos}[e + f x] + i \sqrt{c - i d}\, \mathrm{Sin}[e + f x] + \sqrt{1 + \mathrm{Cos}[2 (e + f x)] + i\, \mathrm{Sin}[2 (e + f x)]}\, \sqrt{c + d\, \mathrm{Tan}[e + f x]}\right)\right]\right)$$

$$\left.(-\mathrm{Cos}[2 e] + i\, \mathrm{Sin}[2 e]) - (1 - i) \sqrt{d}\, \mathrm{Cos}[2 e] \sqrt{c + d\, \mathrm{Tan}[e + f x]} + (1 + i) \sqrt{d}\, \mathrm{Sin}[2 e] \sqrt{c + d\, \mathrm{Tan}[e + f x]}\right)$$

- **Problem 1156: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a + i\, a\, \mathrm{Tan}[e + f x])^{3/2}}{\sqrt{c + d\, \mathrm{Tan}[e + f x]}}\, dx$$

Optimal (type 3, 151 leaves, 7 steps) :

$$-\frac{2 (-1)^{3/4} a^{3/2}\, \mathrm{ArcTanh}\left[\frac{(-1)^{3/4} \sqrt{d} \sqrt{a + i a \mathrm{Tan}[e+f x]}}{\sqrt{a} \sqrt{c + d \mathrm{Tan}[e+f x]}}\right]}{\sqrt{d}\, f} - \frac{2 i \sqrt{2}\, a^{3/2}\, \mathrm{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c + d \mathrm{Tan}[e+f x]}}{\sqrt{c - i d} \sqrt{a + i a \mathrm{Tan}[e+f x]}}\right]}{\sqrt{c - i d}\, f}$$

Result (type 3, 505 leaves) :

$$\frac{1}{\sqrt{c-\mathrm{i}\,d}\,\sqrt{d}\,f}\left(\frac{1}{2}-\frac{\mathrm{i}}{2}\right)\mathrm{Cos}[e+f\,x]$$

$$\left(\sqrt{c-\mathrm{i}\,d}\,\mathrm{Log}\left[\frac{1}{\sqrt{d}\,\left(\mathrm{i}+e^{\mathrm{i}\,(e+f\,x)}\right)}(2-2\,\mathrm{i})\,e^{\frac{3\,\mathrm{i}\,e}{2}}\left(-\mathrm{i}\,d+d\,e^{\mathrm{i}\,(e+f\,x)}+\mathrm{i}\,c\,\left(\mathrm{i}+e^{\mathrm{i}\,(e+f\,x)}\right)-(1+\mathrm{i})\,\sqrt{d}\,\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\,\left(-1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right]-\right.$$

$$\sqrt{c-\mathrm{i}\,d}\,\mathrm{Log}\left[\frac{1}{\sqrt{d}\,\left(-\mathrm{i}+e^{\mathrm{i}\,(e+f\,x)}\right)}(2+2\,\mathrm{i})\,e^{\frac{3\,\mathrm{i}\,e}{2}}\left(d-\mathrm{i}\,d\,e^{\mathrm{i}\,(e+f\,x)}+c\,\left(-\mathrm{i}+e^{\mathrm{i}\,(e+f\,x)}\right)+(1-\mathrm{i})\,\sqrt{d}\,\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\,\left(-1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right]+$$

$$\left.(2-2\,\mathrm{i})\,\sqrt{d}\,\mathrm{Log}\left[2\,\left(\sqrt{c-\mathrm{i}\,d}\,\mathrm{Cos}[e+f\,x]+\mathrm{i}\,\sqrt{c-\mathrm{i}\,d}\,\mathrm{Sin}[e+f\,x]+\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+\mathrm{i}\,\mathrm{Sin}[2\,(e+f\,x)]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\right]\right)$$

$$(\mathrm{Cos}[f\,x]-\mathrm{i}\,\mathrm{Sin}[f\,x])\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]+\mathrm{i}\,\mathrm{Sin}[2\,(e+f\,x)]}\,\left(\mathrm{Cos}[2\,e+f\,x]-\mathrm{i}\,\mathrm{Sin}[2\,e+f\,x]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}$$

- **Problem 1161: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 209 leaves, 8 steps):

$$\frac{2\,(-1)^{1/4}\,a^{5/2}\,\mathrm{ArcTanh}\left[\frac{(-1)^{3/4}\,\sqrt{d}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{d^{3/2}\,f}-\frac{4\,\mathrm{i}\,\sqrt{2}\,a^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-\mathrm{i}\,d)^{3/2}\,f}+\frac{2\,a^2\,(c+\mathrm{i}\,d)\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}{(c-\mathrm{i}\,d)\,d\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 718 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2}\text{Cos}[e+f\,x]^2\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$

$$\left(\frac{(c+i\,d)\,\text{Cos}[e]\,\left(\frac{2\,\text{Cos}[2\,e]}{d}-\frac{2\,i\,\text{Sin}[2\,e]}{d}\right)}{(c-i\,d)\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])}+\frac{(-2\,\text{Cos}[2\,e]+2\,i\,\text{Sin}[2\,e])\,(c\,\text{Sin}[f\,x]+i\,d\,\text{Sin}[f\,x])}{(c-i\,d)\,(c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\right)$$

$$(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}+\left((1+i)\,\text{Cos}[e+f\,x]^3\,\left((c-i\,d)^{3/2}\,\text{Log}\left[\left((2-2\,i)\,e^{\frac{i\,e}{2}}\right.\right.\right.$$

$$\left.\left.\left(-i\,d+d\,e^{i\,(e+f\,x)}+i\,c\,\left(i+e^{i\,(e+f\,x)}\right)-(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\left(\sqrt{d}\,(i\,c+d)\,\left(i+e^{i\,(e+f\,x)}\right)\right)\right]-$$

$$(c-i\,d)^{3/2}\,\text{Log}\left[\left((2+2\,i)\,e^{\frac{i\,e}{2}}\,\left(c+i\,d+i\,c\,e^{i\,(e+f\,x)}+d\,e^{i\,(e+f\,x)}+(1+i)\,\sqrt{d}\,\sqrt{1+e^{2\,i\,(e+f\,x)}}\,\sqrt{c-\frac{i\,d\,\left(-1+e^{2\,i\,(e+f\,x)}\right)}{1+e^{2\,i\,(e+f\,x)}}}\right)\right)\Big/\right.$$

$$\left.\left(\sqrt{d}\,(i\,c+d)\,\left(1+i\,e^{i\,(e+f\,x)}\right)\right)\right]-$$

$$\left.(4+4\,i)\,d^{3/2}\,\text{Log}\left[2\,\left(\sqrt{c-i\,d}\,\text{Cos}[e+f\,x]+i\,\sqrt{c-i\,d}\,\text{Sin}[e+f\,x]+\sqrt{1+\text{Cos}[2\,e+2\,f\,x]+i\,\text{Sin}[2\,e+2\,f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\right]\right)$$

$$\left.(\text{Cos}[2\,e]-i\,\text{Sin}[2\,e])\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\right)\Big/\left((c-i\,d)^{3/2}\,d^{3/2}\,f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\right.$$

$$\left.\sqrt{1+\text{Cos}[2\,e+2\,f\,x]+i\,\text{Sin}[2\,e+2\,f\,x]}\right)$$

- **Problem 1163: Result more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 129 leaves, 3 steps):

$$-\frac{i\,\sqrt{2}\,\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{3/2}\,f}-\frac{2\,d\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 3, 337 leaves):

$$\left(\sqrt{2}\,\sqrt{e^{i f x}}\,\sqrt{\frac{e^{i(e+f x)}}{1+e^{2 i(e+f x)}}}\,\sqrt{1+e^{2 i(e+f x)}}\right.$$

$$\left(-\frac{2 d \sqrt{1+e^{2 i(e+f x)}}\,\sqrt{c-\frac{i d\left(-1+e^{2 i(e+f x)}\right)}{1+e^{2 i(e+f x)}}}}{(c-i d)(c+i d)\left(-i d\left(-1+e^{2 i(e+f x)}\right)+c\left(1+e^{2 i(e+f x)}\right)\right)}-\frac{i e^{-i(e+f x)} \operatorname{Log}\left[2\left(\sqrt{c-i d}\, e^{i(e+f x)}+\sqrt{1+e^{2 i(e+f x)}}\,\sqrt{c-\frac{i d\left(-1+e^{2 i(e+f x)}\right)}{1+e^{2 i(e+f x)}}}\right)\right]}{(c-i d)^{3/2}}\right)$$

$$\left.\sqrt{a+i a \operatorname{Tan}[e+f x]}\right) \Big/ \left(f \sqrt{\operatorname{Sec}[e+f x]}\,\sqrt{\operatorname{Cos}[f x]+i \operatorname{Sin}[f x]}\right)$$

- **Problem 1165: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+i a \operatorname{Tan}[e+f x])^{3/2}(c+d \operatorname{Tan}[e+f x])^{3/2}}\, dx$$

Optimal (type 3, 269 leaves, 6 steps):

$$-\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}\,\sqrt{a+i a \operatorname{Tan}[e+f x]}}\right]}{2 \sqrt{2}\, a^{3/2}(c-i d)^{3/2} f}-\frac{1}{3(i c-d) f(a+i a \operatorname{Tan}[e+f x])^{3/2} \sqrt{c+d \operatorname{Tan}[e+f x]}}+$$

$$\frac{3 i c-11 d}{6 a(c+i d)^2 f \sqrt{a+i a \operatorname{Tan}[e+f x]}\,\sqrt{c+d \operatorname{Tan}[e+f x]}}+\frac{(3 c-5 i d)(c+5 i d) d \sqrt{a+i a \operatorname{Tan}[e+f x]}}{6 a^2(c-i d)(c+i d)^3 f \sqrt{c+d \operatorname{Tan}[e+f x]}}$$

Result (type 3, 642 leaves):

$$-\left(i\, e^{2 i e} \sqrt{e^{i f x}}\, \text{Log}\left[2 \left(\sqrt{c - i d}\, e^{i (e+f x)} + \sqrt{1 + e^{2 i (e+f x)}} \sqrt{c - \frac{i d \left(-1 + e^{2 i (e+f x)}\right)}{1 + e^{2 i (e+f x)}}}\right)\right] \text{Sec}[e + f x]^{3/2} (\text{Cos}[f x] + i\, \text{Sin}[f x])^{3/2}\right) \Big/$$

$$\left(2 \sqrt{2}\, (c - i d)^{3/2} \sqrt{\frac{e^{i (e+f x)}}{1 + e^{2 i (e+f x)}}} \sqrt{1 + e^{2 i (e+f x)}}\, f\, (a + i a\, \text{Tan}[e + f x])^{3/2}\right) +$$

$$\frac{1}{f\, (a + i a\, \text{Tan}[e + f x])^{3/2}} \text{Sec}[e + f x]^2 (\text{Cos}[f x] + i\, \text{Sin}[f x])^2 \sqrt{\text{Sec}[e + f x]\, (c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x])} \left(\frac{5 i (c + 3 i d)\, \text{Cos}[2 f x]}{12 (c + i d)^3} +\right.$$

$$\left(\left(2 i c^3 \text{Cos}[e] - 5 c^2 d\, \text{Cos}[e] + 7 i c d^2 \text{Cos}[e] + 12 d^3 \text{Cos}[e] + 2 i c^2 d\, \text{Sin}[e] - 5 c d^2 \text{Sin}[e] + 7 i d^3 \text{Sin}[e]\right) \left(\frac{1}{6} \text{Cos}[2 e] + \frac{1}{6} i\, \text{Sin}[2 e]\right)\right) \Big/$$

$$\left((c - i d) (c + i d)^3 (c\, \text{Cos}[e] + d\, \text{Sin}[e])\right) + \frac{\text{Cos}[4 f x] \left(\frac{1}{12} i\, \text{Cos}[2 e] + \frac{1}{12} \text{Sin}[2 e]\right)}{(c + i d)^2} + \frac{5 (c + 3 i d)\, \text{Sin}[2 f x]}{12 (c + i d)^3} +$$

$$\left.\frac{\left(\frac{1}{12} \text{Cos}[2 e] - \frac{1}{12} i\, \text{Sin}[2 e]\right) \text{Sin}[4 f x]}{(c + i d)^2} - \frac{2 \left(\frac{1}{2} i d^4 \text{Cos}[2 e - f x] - \frac{1}{2} i d^4 \text{Cos}[2 e + f x] - \frac{1}{2} d^4 \text{Sin}[2 e - f x] + \frac{1}{2} d^4 \text{Sin}[2 e + f x]\right)}{(c - i d) (c + i d)^3 (c\, \text{Cos}[e] + d\, \text{Sin}[e]) (c\, \text{Cos}[e + f x] + d\, \text{Sin}[e + f x])}\right)$$

- **Problem 1166: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a + i a\, \text{Tan}[e + f x])^{5/2} (c + d\, \text{Tan}[e + f x])^{3/2}}\, dx$$

Optimal (type 3, 349 leaves, 7 steps) :

$$-\frac{i\, \text{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c + d\, \text{Tan}[e+f x]}}{\sqrt{c - i d} \sqrt{a + i a\, \text{Tan}[e+f x]}}\right]}{4 \sqrt{2}\, a^{5/2} (c - i d)^{3/2} f} - \frac{1}{5 (i c - d) f (a + i a\, \text{Tan}[e + f x])^{5/2} \sqrt{c + d\, \text{Tan}[e + f x]}} +$$

$$\frac{5 i c - 17 d}{30 a (c + i d)^2 f (a + i a\, \text{Tan}[e + f x])^{3/2} \sqrt{c + d\, \text{Tan}[e + f x]}} +$$

$$\frac{15 c^2 + 70 i c d - 151 d^2}{60 a^2 (i c - d)^3 f \sqrt{a + i a\, \text{Tan}[e + f x]} \sqrt{c + d\, \text{Tan}[e + f x]}} + \frac{d \left(15 c^3 + 65 i c^2 d - 117 c d^2 + 317 i d^3\right) \sqrt{a + i a\, \text{Tan}[e + f x]}}{60 a^3 (c - i d) (c + i d)^4 f \sqrt{c + d\, \text{Tan}[e + f x]}}$$

Result (type 3, 788 leaves) :

$$-\left(i\, e^{3 i e}\sqrt{e^{i f x}}\, \text{Log}\left[2\left(\sqrt{c-i d}\; e^{i (e+f x)}+\sqrt{1+e^{2 i (e+f x)}}\sqrt{c-\frac{i d\left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right] \text{Sec}[e+f x]^{5/2} (\text{Cos}[f x]+i\, \text{Sin}[f x])^{5/2}\right)\Big/$$

$$\left(4\sqrt{2}\,(c-i d)^{3/2}\sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}}\sqrt{1+e^{2 i (e+f x)}}\, f\,(a+i a\, \text{Tan}[e+f x])^{5/2}\right)+$$

$$\frac{1}{f\,(a+i a\, \text{Tan}[e+f x])^{5/2}}\text{Sec}[e+f x]^3 (\text{Cos}[f x]+i\, \text{Sin}[f x])^3\sqrt{\text{Sec}[e+f x]\,(c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])}$$

$$\left(\frac{\left(17 c^2+77 i c d-126 d^2\right) \text{Cos}[2 f x]\left(\frac{1}{60} i\, \text{Cos}[e]-\frac{\text{Sin}[e]}{60}\right)}{(c+i d)^4}+\frac{(7 c+16 i d)\, \text{Cos}[4 f x]\left(\frac{1}{60} i\, \text{Cos}[e]+\frac{\text{Sin}[e]}{60}\right)}{(c+i d)^3}+\right.$$

$$\left(\left(23 c^4 \text{Cos}[e]+91 i c^3 d\, \text{Cos}[e]-109 c^2 d^2 \text{Cos}[e]+223 i c d^3 \text{Cos}[e]+240 d^4 \text{Cos}[e]+23 c^3 d\, \text{Sin}[e]+91 i c^2 d^2 \text{Sin}[e]-\right.\right.$$

$$\left.\left.109 c d^3 \text{Sin}[e]+223 i d^4 \text{Sin}[e]\right)\left(\frac{1}{120}\text{Cos}[3 e]+\frac{1}{120} i\, \text{Sin}[3 e]\right)\right)\Big/\left((c-i d)(c+i d)^4(-i c\, \text{Cos}[e]-i d\, \text{Sin}[e])\right)+$$

$$\frac{\text{Cos}[6 f x]\left(\frac{1}{40} i\, \text{Cos}[3 e]+\frac{1}{40}\text{Sin}[3 e]\right)}{(c+i d)^2}+\frac{\left(17 c^2+77 i c d-126 d^2\right)\left(\frac{\text{Cos}[e]}{60}+\frac{1}{60} i\, \text{Sin}[e]\right) \text{Sin}[2 f x]}{(c+i d)^4}+$$

$$\frac{(7 c+16 i d)\left(\frac{\text{Cos}[e]}{60}-\frac{1}{60} i\, \text{Sin}[e]\right) \text{Sin}[4 f x]}{(c+i d)^3}+\frac{\left(\frac{1}{40}\text{Cos}[3 e]-\frac{1}{40} i\, \text{Sin}[3 e]\right) \text{Sin}[6 f x]}{(c+i d)^2}+$$

$$\left.\frac{2\left(\frac{1}{2} d^5 \text{Cos}[3 e-f x]-\frac{1}{2} d^5 \text{Cos}[3 e+f x]+\frac{1}{2} i d^5 \text{Sin}[3 e-f x]-\frac{1}{2} i d^5 \text{Sin}[3 e+f x]\right)}{(c-i d)(c+i d)^4(c\, \text{Cos}[e]+d\, \text{Sin}[e])(c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])}\right)$$

- **Problem 1167: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a\, \text{Tan}[e+f x])^{5/2}}{(c+d\, \text{Tan}[e+f x])^{5/2}}\, dx$$

Optimal (type 3, 181 leaves, 4 steps):

$$-\frac{4 i \sqrt{2}\, a^{5/2}\, \text{ArcTanh}\left[\frac{\sqrt{2}\sqrt{a}\sqrt{c+d\, \text{Tan}[e+f x]}}{\sqrt{c-i d}\sqrt{a+i a\, \text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{2 a (a+i a\, \text{Tan}[e+f x])^{3/2}}{3 (i c+d) f (c+d\, \text{Tan}[e+f x])^{3/2}}+\frac{4 i a^2\sqrt{a+i a\, \text{Tan}[e+f x]}}{(c-i d)^2 f\sqrt{c+d\, \text{Tan}[e+f x]}}$$

Result (type 3, 481 leaves):

$$-\left(4\,\mathrm{i}\,\sqrt{2}\,e^{-2\,\mathrm{i}\,e}\,\sqrt{e^{\mathrm{i}\,f\,x}}\,\mathrm{Log}\left[2\,e^{-\mathrm{i}\,e}\left(\sqrt{c-\mathrm{i}\,d}\,\,e^{\mathrm{i}\,(e+f\,x)}+\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\,\left(-1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\right)\Big/$$

$$\left((c-\mathrm{i}\,d)^{5/2}\,\sqrt{\frac{e^{\mathrm{i}\,(e+f\,x)}}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\,\,\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,\,f\,\mathrm{Sec}[e+f\,x]^{5/2}\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^{5/2}\right)+\frac{1}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^{2}}$$

$$\mathrm{Cos}[e+f\,x]^{2}\,\sqrt{\mathrm{Sec}[e+f\,x]}\,\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\left(\frac{(7\,\mathrm{Cos}[e]+\mathrm{i}\,\mathrm{Sin}[e])\,\left(\frac{2}{3}\,\mathrm{Cos}[2\,e]-\frac{2}{3}\,\mathrm{i}\,\mathrm{Sin}[2\,e]\right)}{(c-\mathrm{i}\,d)^{2}\,(-\mathrm{i}\,c\,\mathrm{Cos}[e]-\mathrm{i}\,d\,\mathrm{Sin}[e])}+\right.$$

$$\left.\frac{\frac{2}{3}\,d\,\mathrm{Cos}[2\,e]-\frac{2}{3}\,\mathrm{i}\,d\,\mathrm{Sin}[2\,e]}{(c-\mathrm{i}\,d)^{2}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{2}}+\frac{\left(-\frac{2}{3}\,\mathrm{Cos}[2\,e]+\frac{2}{3}\,\mathrm{i}\,\mathrm{Sin}[2\,e]\right)\,(c\,\mathrm{Sin}[f\,x]+7\,\mathrm{i}\,d\,\mathrm{Sin}[f\,x])}{(c-\mathrm{i}\,d)^{2}\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{5/2}$$

- **Problem 1168: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 179 leaves, 4 steps) :

$$-\frac{2\,\mathrm{i}\,\sqrt{2}\,a^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{2}\,\sqrt{a}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-\mathrm{i}\,d)^{5/2}\,f}-\frac{2\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,\left(c^{2}+d^{2}\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,\mathrm{i}\,a\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}{(c-\mathrm{i}\,d)^{2}\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 481 leaves) :

$$-\left(2\,\mathrm{i}\,\sqrt{2}\,\left(e^{\mathrm{i}\,f\,x}\right)^{3/2}\,\mathrm{Log}\left[2\,e^{-\mathrm{i}\,e}\left(\sqrt{c-\mathrm{i}\,d}\,\,e^{\mathrm{i}\,(e+f\,x)}+\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,\sqrt{c-\frac{\mathrm{i}\,d\,\left(-1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right)\right]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\right)\Big/$$

$$\left((c-\mathrm{i}\,d)^{5/2}\,\left(\frac{e^{\mathrm{i}\,(e+f\,x)}}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\right)^{3/2}\,\left(1+e^{2\,\mathrm{i}\,(e+f\,x)}\right)^{3/2}\,f\,\mathrm{Sec}[e+f\,x]^{3/2}\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^{3/2}\right)+\frac{1}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])}$$

$$\mathrm{Cos}[e+f\,x]\,\sqrt{\mathrm{Sec}[e+f\,x]}\,\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\left(\frac{\left(\frac{2\,\mathrm{Cos}[e]}{3}-\frac{2}{3}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\,(3\,c\,\mathrm{Cos}[e]+4\,\mathrm{i}\,d\,\mathrm{Cos}[e]-d\,\mathrm{Sin}[e])}{(c-\mathrm{i}\,d)^{2}\,(c+\mathrm{i}\,d)\,(-\mathrm{i}\,c\,\mathrm{Cos}[e]-\mathrm{i}\,d\,\mathrm{Sin}[e])}+\right.$$

$$\left.\frac{\frac{2}{3}\,\mathrm{i}\,d^{2}\,\mathrm{Cos}[e]+\frac{2}{3}\,d^{2}\,\mathrm{Sin}[e]}{(c-\mathrm{i}\,d)^{2}\,(c+\mathrm{i}\,d)\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{2}}-\frac{\mathrm{i}\,d\,\left(\frac{8\,\mathrm{Cos}[e]}{3}-\frac{8}{3}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\,\mathrm{Sin}[f\,x]}{(c-\mathrm{i}\,d)^{2}\,(c\,\mathrm{Cos}[e]+d\,\mathrm{Sin}[e])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}$$

- **Problem 1169: Result more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 188 leaves, 5 steps):

$$-\frac{i\sqrt{2}\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{2}\sqrt{a}\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}\sqrt{a+i a\,\text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{2 d\sqrt{a+i a\,\text{Tan}[e+f x]}}{3\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^{3/2}}-\frac{2\,(5 c+i d)\, d\sqrt{a+i a\,\text{Tan}[e+f x]}}{3\left(c^2+d^2\right)^2 f\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 3, 394 leaves):

$$\left(\sqrt{2}\sqrt{e^{i f x}}\left(-\left(4 d\, e^{i(e+f x)}\sqrt{1+e^{2 i(e+f x)}}\sqrt{c-\frac{i d\left(-1+e^{2 i(e+f x)}\right)}{1+e^{2 i(e+f x)}}}\left(d^2 e^{2 i(e+f x)}+3 c^2\left(1+e^{2 i(e+f x)}\right)-i c d\left(-3+2 e^{2 i(e+f x)}\right)\right)\right)\Big/\right.\right.$$

$$\left.\left(3\,(c-i d)^2\,(c+i d)^2\left(-i d\left(-1+e^{2 i(e+f x)}\right)+c\left(1+e^{2 i(e+f x)}\right)\right)^2\right)-\frac{i\,\text{Log}\left[2\left(\sqrt{c-i d}\; e^{i(e+f x)}+\sqrt{1+e^{2 i(e+f x)}}\sqrt{c-\frac{i d\left(-1+e^{2 i(e+f x)}\right)}{1+e^{2 i(e+f x)}}}\right)\right]}{(c-i d)^{5/2}}\right)$$

$$\left.\sqrt{a+i a\,\text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\frac{e^{i(e+f x)}}{1+e^{2 i(e+f x)}}}\sqrt{1+e^{2 i(e+f x)}}\; f\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[f x]+i\,\text{Sin}[f x]}\right)$$

Problem 1170: Result more than twice size of optimal antiderivative.

$$\int\frac{1}{\sqrt{a+i a\,\text{Tan}[e+f x]}\;(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 277 leaves, 6 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{2}\sqrt{a}\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}\sqrt{a+i a\,\text{Tan}[e+f x]}}\right]}{\sqrt{2}\sqrt{a}\,(c-i d)^{5/2} f}-\frac{1}{(i c-d)\, f\sqrt{a+i a\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}+$$

$$\frac{d\,(3 i c+5 d)\sqrt{a+i a\,\text{Tan}[e+f x]}}{3 a\,(i c-d)\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^{3/2}}+\frac{(3 c-i d)\,(c-7 i d)\, d\sqrt{a+i a\,\text{Tan}[e+f x]}}{3 a\,(c-i d)^2\,(c+i d)^3 f\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 3, 687 leaves):

$$-\left(i\, e^{i e}\sqrt{e^{i f x}}\, \text{Log}\left[2\left(\sqrt{c-i d}\, e^{i (e+f x)}+\sqrt{1+e^{2 i (e+f x)}}\sqrt{c-\frac{i d\left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right]\sqrt{\text{Sec}[e+f x]}\sqrt{\text{Cos}[f x]+i\,\text{Sin}[f x]}\right)\Big/$$
$$\left(\sqrt{2}\,(c-i d)^{5/2}\sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}}\sqrt{1+e^{2 i (e+f x)}}\, f\sqrt{a+i a\,\text{Tan}[e+f x]}\right)+$$
$$\frac{1}{f\sqrt{a+i a\,\text{Tan}[e+f x]}}\text{Sec}[e+f x]\,(\text{Cos}[f x]+i\,\text{Sin}[f x])\sqrt{\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}\left(\frac{\text{Cos}[2 f x]\left(\frac{1}{2} i\,\text{Cos}[e]+\frac{\text{Sin}[e]}{2}\right)}{(c+i d)^3}+\right.$$
$$\left(\left(\frac{\text{Cos}[e]}{6}+\frac{1}{6} i\,\text{Sin}[e]\right)\left(3 i c^3\,\text{Cos}[e]+6 c^2 d\,\text{Cos}[e]-39 i c d^2\,\text{Cos}[e]-8 d^3\,\text{Cos}[e]+3 i c^2 d\,\text{Sin}[e]+6 c d^2\,\text{Sin}[e]+i d^3\,\text{Sin}[e]\right)\right)\Big/$$
$$\left((c-i d)^2 (c+i d)^3 (c\,\text{Cos}[e]+d\,\text{Sin}[e])\right)+\frac{\left(\frac{\text{Cos}[e]}{2}-\frac{1}{2} i\,\text{Sin}[e]\right)\text{Sin}[2 f x]}{(c+i d)^3}+\frac{-\frac{2}{3} i d^4\,\text{Cos}[e]+\frac{2}{3} d^4\,\text{Sin}[e]}{(c-i d)^2 (c+i d)^3 (c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2}+$$
$$\left(4\left(-\frac{5}{2} c d^3\,\text{Cos}[e-f x]+\frac{1}{2} i d^4\,\text{Cos}[e-f x]+\frac{5}{2} c d^3\,\text{Cos}[e+f x]-\frac{1}{2} i d^4\,\text{Cos}[e+f x]-\frac{5}{2} i c d^3\,\text{Sin}[e-f x]-\frac{1}{2} d^4\,\text{Sin}[e-f x]+\right.\right.$$
$$\left.\left.\left.\frac{5}{2} i c d^3\,\text{Sin}[e+f x]+\frac{1}{2} d^4\,\text{Sin}[e+f x]\right)\right)\Big/\left(3 (c-i d)^2 (c+i d)^3 (c\,\text{Cos}[e]+d\,\text{Sin}[e])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right)\right)$$

- **Problem 1171: Result more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+i a\,\text{Tan}[e+f x])^{3/2}\,(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 354 leaves, 7 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{2}\sqrt{a}\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}\sqrt{a+i a\,\text{Tan}[e+f x]}}\right]}{2\sqrt{2}\,a^{3/2}\,(c-i d)^{5/2}\, f}-\frac{1}{3\,(i c-d)\, f\,(a+i a\,\text{Tan}[e+f x])^{3/2}\,(c+d\,\text{Tan}[e+f x])^{3/2}}+$$
$$\frac{i c-5 d}{2 a\,(c+i d)^2 f\sqrt{a+i a\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}+$$
$$\frac{d\left(3 c^2+14 i c d+21 d^2\right)\sqrt{a+i a\,\text{Tan}[e+f x]}}{6 a^2\,(c-i d)\,(c+i d)^3 f\,(c+d\,\text{Tan}[e+f x])^{3/2}}+\frac{(c-3 i d)\, d\left(3 c^2+22 i c d+13 d^2\right)\sqrt{a+i a\,\text{Tan}[e+f x]}}{6 a^2\,(c-i d)^2\,(c+i d)^4 f\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 3, 803 leaves):

$$-\left(i\, e^{2 i e} \sqrt{e^{i f x}}\, \text{Log}\left[2\left(\sqrt{c-i d}\, e^{i(e+f x)}+\sqrt{1+e^{2 i(e+f x)}} \sqrt{c-\frac{i d\left(-1+e^{2 i(e+f x)}\right)}{1+e^{2 i(e+f x)}}}\right)\right] \text{Sec}[e+f x]^{3/2}\, (\text{Cos}[f x]+i\, \text{Sin}[f x])^{3/2}\right) \Big/$$

$$\left(2 \sqrt{2}\, (c-i d)^{5/2} \sqrt{\frac{e^{i(e+f x)}}{1+e^{2 i(e+f x)}}} \sqrt{1+e^{2 i(e+f x)}}\, f\, (a+i a\, \text{Tan}[e+f x])^{3/2}\right)+$$

$$\frac{1}{f\,(a+i a\, \text{Tan}[e+f x])^{3/2}} \text{Sec}[e+f x]^2\, (\text{Cos}[f x]+i\, \text{Sin}[f x])^2 \sqrt{\text{Sec}[e+f x]\,(c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])} \left(\frac{i\,(5 c+21 i d)\, \text{Cos}[2 f x]}{12\,(c+i d)^4}+\right.$$

$$\left(\left(i c^4 \text{Cos}[e]-3 c^3 d\, \text{Cos}[e]+9 i c^2 d^2 \text{Cos}[e]+29 c d^3 \text{Cos}[e]-10 i d^4 \text{Cos}[e]+i c^3 d\, \text{Sin}[e]-3 c^2 d^2 \text{Sin}[e]+9 i c d^3 \text{Sin}[e]+3 d^4 \text{Sin}[e]\right)\right.$$

$$\left.\left(\frac{1}{3} \text{Cos}[2 e]+\frac{1}{3} i\, \text{Sin}[2 e]\right)\right) \Big/ \left((c-i d)^2 (c+i d)^4 (c\, \text{Cos}[e]+d\, \text{Sin}[e])\right)+\frac{\text{Cos}[4 f x]\left(\frac{1}{12} i\, \text{Cos}[2 e]+\frac{1}{12} \text{Sin}[2 e]\right)}{(c+i d)^3}+$$

$$\frac{(5 c+21 i d)\, \text{Sin}[2 f x]}{12\,(c+i d)^4}+\frac{\left(\frac{1}{12} \text{Cos}[2 e]-\frac{1}{12} i\, \text{Sin}[2 e]\right) \text{Sin}[4 f x]}{(c+i d)^3}+\frac{\frac{2}{3} d^5 \text{Cos}[2 e]+\frac{2}{3} i d^5 \text{Sin}[2 e]}{(c-i d)^2 (c+i d)^4 (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])^2}-$$

$$\left(2\left(\frac{13}{2} i c d^4 \text{Cos}[2 e-f x]+\frac{5}{2} d^5 \text{Cos}[2 e-f x]-\frac{13}{2} i c d^4 \text{Cos}[2 e+f x]-\frac{5}{2} d^5 \text{Cos}[2 e+f x]-\frac{13}{2} c d^4 \text{Sin}[2 e-f x]+\frac{5}{2} i d^5 \text{Sin}[2 e-f x]+\right.\right.$$

$$\left.\left.\left.\frac{13}{2} c d^4 \text{Sin}[2 e+f x]-\frac{5}{2} i d^5 \text{Sin}[2 e+f x]\right)\right) \Big/ \left(3\,(c-i d)^2 (c+i d)^4 (c\, \text{Cos}[e]+d\, \text{Sin}[e])\, (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])\right)\right)$$

- **Problem 1172: Result more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+i a\, \text{Tan}[e+f x])^{5/2}\, (c+d\, \text{Tan}[e+f x])^{5/2}}\, dx$$

Optimal (type 3, 444 leaves, 8 steps):

$$-\frac{i\, \text{ArcTanh}\left[\frac{\sqrt{2} \sqrt{a} \sqrt{c+d\, \text{Tan}[e+f x]}}{\sqrt{c-i d} \sqrt{a+i a\, \text{Tan}[e+f x]}}\right]}{4 \sqrt{2}\, a^{5/2}\, (c-i d)^{5/2} f}-\frac{1}{5\,(i c-d)\, f\,(a+i a\, \text{Tan}[e+f x])^{5/2}\, (c+d\, \text{Tan}[e+f x])^{3/2}}+$$

$$\frac{5 i c-21 d}{30 a\,(c+i d)^2 f\,(a+i a\, \text{Tan}[e+f x])^{3/2}\, (c+d\, \text{Tan}[e+f x])^{3/2}}+\frac{5 c^2+30 i c d-89 d^2}{20 a^2\,(i c-d)^3 f \sqrt{a+i a\, \text{Tan}[e+f x]}\, (c+d\, \text{Tan}[e+f x])^{3/2}}+$$

$$\frac{d\left(15 c^3+85 i c^2 d-221 c d^2+361 i d^3\right) \sqrt{a+i a\, \text{Tan}[e+f x]}}{60 a^3\,(c-i d)\,(c+i d)^4 f\,(c+d\, \text{Tan}[e+f x])^{3/2}}+\frac{d\left(15 c^4+80 i c^3 d-182 c^2 d^2+1224 i c d^3+707 d^4\right) \sqrt{a+i a\, \text{Tan}[e+f x]}}{60 a^3\,(c-i d)^2 (c+i d)^5 f \sqrt{c+d\, \text{Tan}[e+f x]}}$$

Result (type 3, 928 leaves):

$$-\left(i\, e^{3 i e} \sqrt{e^{i f x}}\, \text{Log}\left[2 \left(\sqrt{c-i d}\; e^{i (e+f x)}+\sqrt{1+e^{2 i (e+f x)}} \sqrt{c-\frac{i d \left(-1+e^{2 i (e+f x)}\right)}{1+e^{2 i (e+f x)}}}\right)\right] \text{Sec}[e+f x]^{5/2} (\text{Cos}[f x]+i\, \text{Sin}[f x])^{5/2}\right) \Big/$$
$$\left(4 \sqrt{2}\, (c-i d)^{5/2} \sqrt{\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}} \sqrt{1+e^{2 i (e+f x)}}\; f\, (a+i a \text{Tan}[e+f x])^{5/2}\right)+$$
$$\frac{1}{f (a+i a \text{Tan}[e+f x])^{5/2}} \text{Sec}[e+f x]^3 (\text{Cos}[f x]+i\, \text{Sin}[f x])^3 \sqrt{\text{Sec}[e+f x] (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])}$$
$$\left(\frac{\left(17 c^2+102 i c d-231 d^2\right) \text{Cos}[2 f x] \left(\frac{1}{60} i\, \text{Cos}[e]-\frac{\text{Sin}[e]}{60}\right)}{(c+i d)^5}+\frac{(c+3 i d) \text{Cos}[4 f x] \left(\frac{7}{60} i\, \text{Cos}[e]+\frac{7 \text{Sin}[e]}{60}\right)}{(c+i d)^4}+\right.$$
$$\left(\left(23 i c^5 \text{Cos}[e]-108 c^4 d\, \text{Cos}[e]-138 i c^3 d^2 \text{Cos}[e]-692 c^2 d^3 \text{Cos}[e]+1623 i c d^4 \text{Cos}[e]+640 d^5 \text{Cos}[e]+23 i c^4 d\, \text{Sin}[e]-\right.\right.$$
$$\left.\left.108 c^3 d^2 \text{Sin}[e]-138 i c^2 d^3 \text{Sin}[e]-692 c d^4 \text{Sin}[e]+343 i d^5 \text{Sin}[e]\right) \left(\frac{1}{120} \text{Cos}[3 e]+\frac{1}{120} i\, \text{Sin}[3 e]\right)\right) \Big/$$
$$\left((c-i d)^2 (c+i d)^5 (c\, \text{Cos}[e]+d\, \text{Sin}[e])\right)+\frac{\text{Cos}[6 f x] \left(\frac{1}{40} i\, \text{Cos}[3 e]+\frac{1}{40} \text{Sin}[3 e]\right)}{(c+i d)^3}+$$
$$\frac{\left(17 c^2+102 i c d-231 d^2\right) \left(\frac{\text{Cos}[e]}{60}+\frac{1}{60} i\, \text{Sin}[e]\right) \text{Sin}[2 f x]}{(c+i d)^5}+\frac{(c+3 i d) \left(\frac{7 \text{Cos}[e]}{60}-\frac{7}{60} i\, \text{Sin}[e]\right) \text{Sin}[4 f x]}{(c+i d)^4}+$$
$$\frac{\left(\frac{1}{40} \text{Cos}[3 e]-\frac{1}{40} i\, \text{Sin}[3 e]\right) \text{Sin}[6 f x]}{(c+i d)^3}+\frac{\frac{2}{3} i d^6 \text{Cos}[3 e]-\frac{2}{3} d^6 \text{Sin}[3 e]}{(c-i d)^2 (c+i d)^5 (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])^2}+$$
$$\left(16 \left(c d^5 \text{Cos}[3 e-f x]-\frac{1}{2} i d^6 \text{Cos}[3 e-f x]-c d^5 \text{Cos}[3 e+f x]+\frac{1}{2} i d^6 \text{Cos}[3 e+f x]+i c d^5 \text{Sin}[3 e-f x]+\frac{1}{2} d^6 \text{Sin}[3 e-f x]-\right.\right.$$
$$\left.\left.\left.i c d^5 \text{Sin}[3 e+f x]-\frac{1}{2} d^6 \text{Sin}[3 e+f x]\right)\right) \Big/ \left(3 (c-i d)^2 (c+i d)^5 (c\, \text{Cos}[e]+d\, \text{Sin}[e]) (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])\right)\right)$$

■ Problem 1173: Unable to integrate problem.

$$\int (a+i a \text{Tan}[e+f x])^m (c+d \text{Tan}[e+f x])^n \, dx$$

Optimal (type 6, 114 leaves, 3 steps):

$$-\frac{1}{2 f m} i\, \text{AppellF1}\left[m,-n,1,1+m,-\frac{d (1+i \text{Tan}[e+f x])}{i c-d},\frac{1}{2} (1+i \text{Tan}[e+f x])\right] (a+i a \text{Tan}[e+f x])^m (c+d \text{Tan}[e+f x])^n \left(\frac{c+d \text{Tan}[e+f x]}{c+i d}\right)^{-n}$$

Result (type 8, 30 leaves):

$$\int (a + i a \operatorname{Tan}[e + f x])^m (c + d \operatorname{Tan}[e + f x])^n \, dx$$

- **Problem 1174: Unable to integrate problem.**

$$\int (a + i a \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^n \, dx$$

Optimal (type 5, 157 leaves, 4 steps):

$$\frac{a^3 (i c - d (5 + 2 n)) (c + d \operatorname{Tan}[e + f x])^{1+n}}{d^2 f (1 + n) (2 + n)} + \frac{4 a^3 \operatorname{Hypergeometric2F1}\left[1, 1 + n, 2 + n, \frac{c+d \operatorname{Tan}[e+f x]}{c-i d}\right] (c + d \operatorname{Tan}[e + f x])^{1+n}}{(i c + d) f (1 + n)} - \frac{\left(a^3 + i a^3 \operatorname{Tan}[e + f x]\right) (c + d \operatorname{Tan}[e + f x])^{1+n}}{d f (2 + n)}$$

Result (type 8, 30 leaves):

$$\int (a + i a \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^n \, dx$$

- **Problem 1175: Unable to integrate problem.**

$$\int (a + i a \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])^n \, dx$$

Optimal (type 5, 95 leaves, 3 steps):

$$-\frac{a^2 (c + d \operatorname{Tan}[e + f x])^{1+n}}{d f (1 + n)} + \frac{2 a^2 \operatorname{Hypergeometric2F1}\left[1, 1 + n, 2 + n, \frac{c+d \operatorname{Tan}[e+f x]}{c-i d}\right] (c + d \operatorname{Tan}[e + f x])^{1+n}}{(i c + d) f (1 + n)}$$

Result (type 8, 30 leaves):

$$\int (a + i a \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])^n \, dx$$

- **Problem 1176: Unable to integrate problem.**

$$\int (a + i a \operatorname{Tan}[e + f x]) (c + d \operatorname{Tan}[e + f x])^n \, dx$$

Optimal (type 5, 61 leaves, 2 steps):

$$\frac{a \operatorname{Hypergeometric2F1}\left[1, 1 + n, 2 + n, \frac{c+d \operatorname{Tan}[e+f x]}{c-i d}\right] (c + d \operatorname{Tan}[e + f x])^{1+n}}{(i c + d) f (1 + n)}$$

Result (type 8, 28 leaves):

$$\int (a + i a \operatorname{Tan}[e + f x]) (c + d \operatorname{Tan}[e + f x])^n \, dx$$

- **Problem 1177: Unable to integrate problem.**

$$\int \frac{(c + d \operatorname{Tan}[e + f x])^n}{a + i a \operatorname{Tan}[e + f x]} \, dx$$

Optimal (type 5, 193 leaves, 6 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{c+d\,\text{Tan}[e+f\,x]}{c-i\,d}\right]\ (c+d\,\text{Tan}[e+f\,x])^{1+n}}{4\,a\,(i\,c+d)\,f\,(1+n)}+$$
$$\frac{(i\,c-d+2\,d\,n)\ \text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}\right]\ (c+d\,\text{Tan}[e+f\,x])^{1+n}}{4\,a\,(c+i\,d)^2\,f\,(1+n)}-\frac{(c+d\,\text{Tan}[e+f\,x])^{1+n}}{2\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])}$$

Result (type 8, 30 leaves) :

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^n}{a+i\,a\,\text{Tan}[e+f\,x]}\,dx$$

Problem 1178: Unable to integrate problem.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^n}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 273 leaves, 7 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{c+d\,\text{Tan}[e+f\,x]}{c-i\,d}\right]\ (c+d\,\text{Tan}[e+f\,x])^{1+n}}{8\,a^2\,(i\,c+d)\,f\,(1+n)}+\frac{1}{8\,a^2\,(i\,c-d)^3\,f\,(1+n)}$$
$$\left(c^2+2\,i\,c\,d\,(1-n)-d^2\,\left(1-4\,n+2\,n^2\right)\right)\ \text{Hypergeometric2F1}\left[1,\ 1+n,\ 2+n,\ \frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}\right]\ (c+d\,\text{Tan}[e+f\,x])^{1+n}+$$
$$\frac{(i\,c-d\,(2-n))\ (c+d\,\text{Tan}[e+f\,x])^{1+n}}{4\,a^2\,(c+i\,d)^2\,f\,(1+i\,\text{Tan}[e+f\,x])}-\frac{(c+d\,\text{Tan}[e+f\,x])^{1+n}}{4\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2}$$

Result (type 8, 30 leaves) :

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^n}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Problem 1179: Unable to integrate problem.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^n}{(a+i\,a\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 381 leaves, 8 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{c+d\,\text{Tan}[e+f\,x]}{c-i\,d}\right](c+d\,\text{Tan}[e+f\,x])^{1+n}}{16\,a^3\,(i\,c+d)\,f\,(1+n)}+$$

$$\frac{1}{48\,a^3\,(c+i\,d)^4\,f\,(1+n)}\left(3\,i\,c^3-c^2\,d\,(9-6\,n)-3\,i\,c\,d^2\left(3-6\,n+2\,n^2\right)+d^3\left(3-20\,n+18\,n^2-4\,n^3\right)\right)$$

$$\text{Hypergeometric2F1}\left[1,1+n,2+n,\frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}\right](c+d\,\text{Tan}[e+f\,x])^{1+n}-\frac{(c+d\,\text{Tan}[e+f\,x])^{1+n}}{6\,(i\,c-d)\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^3}+$$

$$\frac{(3\,i\,c-d\,(7-2\,n))\,(c+d\,\text{Tan}[e+f\,x])^{1+n}}{24\,a\,(c+i\,d)^2\,f\,(a+i\,a\,\text{Tan}[e+f\,x])^2}+\frac{\left(3\,i\,c^2-3\,c\,d\,(3-n)-i\,d^2\left(10-9\,n+2\,n^2\right)\right)(c+d\,\text{Tan}[e+f\,x])^{1+n}}{24\,(c+i\,d)^3\,f\left(a^3+i\,a^3\,\text{Tan}[e+f\,x]\right)}$$

Result (type 8, 30 leaves) :

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^n}{(a+i\,a\,\text{Tan}[e+f\,x])^3}\,dx$$

- **Problem 1180: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^3\,dx$$

Optimal (type 5, 192 leaves, 5 steps) :

$$-\frac{2\,d\left(d^2+i\,c\,d\,m-c^2\,(3+m)\right)(a+i\,a\,\text{Tan}[e+f\,x])^m}{f\,m\,(2+m)}+\frac{(i\,c+d)^3\,\text{Hypergeometric2F1}\left[1,m,1+m,\frac{1}{2}\,(1+i\,\text{Tan}[e+f\,x])\right](a+i\,a\,\text{Tan}[e+f\,x])^m}{2\,f\,m}-$$

$$\frac{d^2\,(d\,m+i\,c\,(4+m))\,(a+i\,a\,\text{Tan}[e+f\,x])^{1+m}}{a\,f\,(1+m)\,(2+m)}+\frac{d\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^2}{f\,(2+m)}$$

Result (type 5, 834 leaves) :

$$\frac{1}{f}2^{-1+m}e^{-2 i f m x}\left(e^{i f x}\right)^m\left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m$$

$$\left(\frac{(i c-d)^3 e^{2 i f m x}\left(1+e^{2 i (e+f x)}\right)^m \text{Hypergeometric2F1}\left[m,3+m,1+m,-e^{2 i (e+f x)}\right]}{m}-\frac{1}{\left(1+e^{2 i (e+f x)}\right)^2 (1+m)(2+m)(3+m)}\right.$$

$$e^{2 i e}\Big(3 i c^3 e^{2 i (e+f (2+m) x)}(1+m)(3+m)+3 c^2 d\, e^{2 i (e+f (2+m) x)}(1+m)(3+m)+3 i c d^2 e^{2 i (e+f (2+m) x)}(1+m)(3+m)+$$

$$3 d^3 e^{2 i (e+f (2+m) x)}(1+m)(3+m)+3 i c^3 e^{2 i f (1+m) x}\left(1+e^{2 i (e+f x)}\right)^{2+m}(2+m)(3+m)\text{Hypergeometric2F1}\left[1+m,3+m,2+m,-e^{2 i (e+f x)}\right]-$$

$$3 c^2 d\, e^{2 i f (1+m) x}\left(1+e^{2 i (e+f x)}\right)^{2+m}(2+m)(3+m)\text{Hypergeometric2F1}\left[1+m,3+m,2+m,-e^{2 i (e+f x)}\right]+$$

$$3 i c d^2 e^{2 i f (1+m) x}\left(1+e^{2 i (e+f x)}\right)^{2+m}(2+m)(3+m)\text{Hypergeometric2F1}\left[1+m,3+m,2+m,-e^{2 i (e+f x)}\right]-$$

$$3 d^3 e^{2 i f (1+m) x}\left(1+e^{2 i (e+f x)}\right)^{2+m}(2+m)(3+m)\text{Hypergeometric2F1}\left[1+m,3+m,2+m,-e^{2 i (e+f x)}\right]+$$

$$i c^3 e^{2 i (2 e+f (3+m) x)}\left(1+e^{2 i (e+f x)}\right)^{2+m}(1+m)(2+m)\text{Hypergeometric2F1}\left[3+m,3+m,4+m,-e^{2 i (e+f x)}\right]+$$

$$3 c^2 d\, e^{2 i (2 e+f (3+m) x)}\left(1+e^{2 i (e+f x)}\right)^{2+m}(1+m)(2+m)\text{Hypergeometric2F1}\left[3+m,3+m,4+m,-e^{2 i (e+f x)}\right]-$$

$$3 i c d^2 e^{2 i (2 e+f (3+m) x)}\left(1+e^{2 i (e+f x)}\right)^{2+m}(1+m)(2+m)\text{Hypergeometric2F1}\left[3+m,3+m,4+m,-e^{2 i (e+f x)}\right]-$$

$$\left.d^3 e^{2 i (2 e+f (3+m) x)}\left(1+e^{2 i (e+f x)}\right)^{2+m}(1+m)(2+m)\text{Hypergeometric2F1}\left[3+m,3+m,4+m,-e^{2 i (e+f x)}\right]\Big)\right)$$

$$\text{Sec}[e+f x]^{-m}(\text{Cos}[f x]+i\,\text{Sin}[f x])^{-m}(a+i a\,\text{Tan}[e+f x])^m$$

Problem 1181: Result more than twice size of optimal antiderivative.

$$\int (a+i a\,\text{Tan}[e+f x])^m (c+d\,\text{Tan}[e+f x])^2\, dx$$

Optimal (type 5, 119 leaves, 4 steps):

$$\frac{2 c d (a+i a\,\text{Tan}[e+f x])^m}{f m}-\frac{i (c-i d)^2 \text{Hypergeometric2F1}\left[1,m,1+m,\frac{1}{2}(1+i\,\text{Tan}[e+f x])\right](a+i a\,\text{Tan}[e+f x])^m}{2 f m}-\frac{i d^2 (a+i a\,\text{Tan}[e+f x])^{1+m}}{a f (1+m)}$$

Result (type 5, 422 leaves):

$$\frac{1}{f}2^{-1+m}e^{-2 i f m x}\left(e^{i f x}\right)^m\left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m$$

$$\left(-\frac{i (c+i d)^2 e^{2 i f m x}\left(1+e^{2 i (e+f x)}\right)^m \text{Hypergeometric2F1}\left[m,2+m,1+m,-e^{2 i (e+f x)}\right]}{m}-\frac{1}{\left(1+e^{2 i (e+f x)}\right)(1+m)(2+m)}\right.$$

$$i e^{2 i e}\Big(2 c^2 e^{2 i f (1+m) x}(2+m)+2 d^2 e^{2 i f (1+m) x}(2+m)+c^2 e^{2 i (e+f (2+m) x)}\left(1+e^{2 i (e+f x)}\right)^{1+m}(1+m)\text{Hypergeometric2F1}\left[2+m,2+m,\right.$$

$$\left.3+m,-e^{2 i (e+f x)}\right]-2 i c d\, e^{2 i (e+f (2+m) x)}\left(1+e^{2 i (e+f x)}\right)^{1+m}(1+m)\text{Hypergeometric2F1}\left[2+m,2+m,3+m,-e^{2 i (e+f x)}\right]-$$

$$\left.d^2 e^{2 i (e+f (2+m) x)}\left(1+e^{2 i (e+f x)}\right)^{1+m}(1+m)\text{Hypergeometric2F1}\left[2+m,2+m,3+m,-e^{2 i (e+f x)}\right]\Big)\right)$$

$$\text{Sec}[e+f x]^{-m}(\text{Cos}[f x]+i\,\text{Sin}[f x])^{-m}(a+i a\,\text{Tan}[e+f x])^m$$

Problem 1182: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^m (c+d \operatorname{Tan}[e+f x]) \, dx$$

Optimal (type 5, 78 leaves, 3 steps):

$$\frac{d (a+i a \operatorname{Tan}[e+f x])^m}{f m}-\frac{(i c+d) \operatorname{Hypergeometric2F1}\left[1, m, 1+m, \frac{1}{2} (1+i \operatorname{Tan}[e+f x])\right] (a+i a \operatorname{Tan}[e+f x])^m}{2 f m}$$

Result (type 5, 171 leaves):

$$\frac{1}{f m (1+m)} 2^{-1+m} \left(e^{i f x}\right)^m \left(\frac{e^{i (e+f x)}}{1+e^{2 i (e+f x)}}\right)^m \left((-i c+d) (1+m)-i (c-i d) e^{2 i (e+f x)} \left(1+e^{2 i (e+f x)}\right)^m m \operatorname{Hypergeometric2F1}\left[1+m, 1+m, 2+m, -e^{2 i (e+f x)}\right]\right) \operatorname{Sec}[e+f x]^{-m} (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^{-m} (a+i a \operatorname{Tan}[e+f x])^m$$

Problem 1183: Unable to integrate problem.

$$\int \frac{(a+i a \operatorname{Tan}[e+f x])^m}{c+d \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 5, 122 leaves, 5 steps):

$$\frac{\operatorname{Hypergeometric2F1}\left[1, m, 1+m, \frac{1}{2} (1+i \operatorname{Tan}[e+f x])\right] (a+i a \operatorname{Tan}[e+f x])^m}{2 (i c+d) f m}-\frac{d \operatorname{Hypergeometric2F1}\left[1, m, 1+m, -\frac{d (1+i \operatorname{Tan}[e+f x])}{i c-d}\right] (a+i a \operatorname{Tan}[e+f x])^m}{\left(c^2+d^2\right) f m}$$

Result (type 8, 30 leaves):

$$\int \frac{(a+i a \operatorname{Tan}[e+f x])^m}{c+d \operatorname{Tan}[e+f x]} \, dx$$

Problem 1184: Unable to integrate problem.

$$\int \frac{(a+i a \operatorname{Tan}[e+f x])^m}{(c+d \operatorname{Tan}[e+f x])^2} \, dx$$

Optimal (type 5, 180 leaves, 6 steps):

$$-\frac{i \operatorname{Hypergeometric2F1}\left[1, m, 1+m, \frac{1}{2} (1+i \operatorname{Tan}[e+f x])\right] (a+i a \operatorname{Tan}[e+f x])^m}{2 (c-i d)^2 f m}-\frac{d (c (2-m)+i d m) \operatorname{Hypergeometric2F1}\left[1, m, 1+m, -\frac{d (1+i \operatorname{Tan}[e+f x])}{i c-d}\right] (a+i a \operatorname{Tan}[e+f x])^m}{\left(c^2+d^2\right)^2 f m}-\frac{d (a+i a \operatorname{Tan}[e+f x])^m}{\left(c^2+d^2\right) f (c+d \operatorname{Tan}[e+f x])}$$

Result (type 8, 30 leaves):

$$\int \frac{(a + i\, a \operatorname{Tan}[e + f x])^m}{(c + d \operatorname{Tan}[e + f x])^2}\, dx$$

Problem 1185: Unable to integrate problem.

$$\int \frac{(a + i\, a \operatorname{Tan}[e + f x])^m}{(c + d \operatorname{Tan}[e + f x])^3}\, dx$$

Optimal (type 5, 264 leaves, 7 steps):

$$-\frac{\text{Hypergeometric2F1}\left[1, m, 1 + m, \frac{1}{2} (1 + i \operatorname{Tan}[e + f x])\right] (a + i\, a \operatorname{Tan}[e + f x])^m}{2 (i\, c + d)^3 f m} - \frac{1}{2 \left(c^2 + d^2\right)^3 f m}$$

$$d \left(2 i\, c\, d\, (3 - m)\, m + c^2 \left(6 - 5 m + m^2\right) - d^2 \left(2 - m + m^2\right)\right) \text{Hypergeometric2F1}\left[1, m, 1 + m, -\frac{d (1 + i \operatorname{Tan}[e + f x])}{i\, c - d}\right] (a + i\, a \operatorname{Tan}[e + f x])^m -$$

$$\frac{d\, (a + i\, a \operatorname{Tan}[e + f x])^m}{2 \left(c^2 + d^2\right) f\, (c + d \operatorname{Tan}[e + f x])^2} - \frac{d\, (c\, (4 - m) + i\, d\, m)\, (a + i\, a \operatorname{Tan}[e + f x])^m}{2 \left(c^2 + d^2\right)^2 f\, (c + d \operatorname{Tan}[e + f x])}$$

Result (type 8, 30 leaves):

$$\int \frac{(a + i\, a \operatorname{Tan}[e + f x])^m}{(c + d \operatorname{Tan}[e + f x])^3}\, dx$$

Problem 1186: Unable to integrate problem.

$$\int (a + i\, a \operatorname{Tan}[e + f x])^m (c + d \operatorname{Tan}[e + f x])^{3/2}\, dx$$

Optimal (type 6, 123 leaves, 3 steps):

$$-\frac{1}{2 f m \sqrt{\frac{c + d \operatorname{Tan}[e + f x]}{c + i\, d}}} (i\, c - d)\, \text{AppellF1}\left[m, -\frac{3}{2}, 1, 1 + m, -\frac{d (1 + i \operatorname{Tan}[e + f x])}{i\, c - d}, \frac{1}{2} (1 + i \operatorname{Tan}[e + f x])\right] (a + i\, a \operatorname{Tan}[e + f x])^m \sqrt{c + d \operatorname{Tan}[e + f x]}$$

Result (type 8, 32 leaves):

$$\int (a + i\, a \operatorname{Tan}[e + f x])^m (c + d \operatorname{Tan}[e + f x])^{3/2}\, dx$$

Problem 1187: Unable to integrate problem.

$$\int (a + i\, a \operatorname{Tan}[e + f x])^m \sqrt{c + d \operatorname{Tan}[e + f x]}\, dx$$

Optimal (type 6, 116 leaves, 3 steps):

$$-\frac{1}{2\,f\,m\,\sqrt{\frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}}}\,i\,\text{AppellF1}\left[m,-\frac{1}{2},1,1+m,-\frac{d\,(1+i\,\text{Tan}[e+f\,x])}{i\,c-d},\frac{1}{2}\,(1+i\,\text{Tan}[e+f\,x])\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}$$

Result (type 8, 32 leaves) :

$$\int (a+i\,a\,\text{Tan}[e+f\,x])^m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,dx$$

- **Problem 1188: Unable to integrate problem.**

$$\int \frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 6, 116 leaves, 3 steps) :

$$-\frac{i\,\text{AppellF1}\left[m,\frac{1}{2},1,1+m,-\frac{d\,(1+i\,\text{Tan}[e+f\,x])}{i\,c-d},\frac{1}{2}\,(1+i\,\text{Tan}[e+f\,x])\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,\sqrt{\frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}}}{2\,f\,m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 32 leaves) :

$$\int \frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

- **Problem 1189: Unable to integrate problem.**

$$\int \frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 6, 125 leaves, 3 steps) :

$$\frac{\text{AppellF1}\left[m,\frac{3}{2},1,1+m,-\frac{d\,(1+i\,\text{Tan}[e+f\,x])}{i\,c-d},\frac{1}{2}\,(1+i\,\text{Tan}[e+f\,x])\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,\sqrt{\frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}}}{2\,(i\,c-d)\,f\,m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 32 leaves) :

$$\int \frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

- **Problem 1190: Unable to integrate problem.**

$$\int \frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 6, 125 leaves, 3 steps) :

$$-\frac{i\,\text{AppellF1}\left[m,\frac{5}{2},1,1+m,-\frac{d\,(1+i\,\text{Tan}[e+f\,x])}{i\,c-d},\frac{1}{2}\,(1+i\,\text{Tan}[e+f\,x])\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,\sqrt{\frac{c+d\,\text{Tan}[e+f\,x]}{c+i\,d}}}{2\,(c+i\,d)^2\,f\,m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 32 leaves) :

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Problem 1195: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{c+d\,\text{Tan}[e+f\,x]}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 111 leaves, 3 steps) :

$$\frac{\left(a^2\,c-b^2\,c+2\,a\,b\,d\right)\,x}{\left(a^2+b^2\right)^2}+\frac{\left(2\,a\,b\,c-a^2\,d+b^2\,d\right)\,\text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]}{\left(a^2+b^2\right)^2\,f}-\frac{b\,c-a\,d}{\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 3, 257 leaves) :

$$\frac{1}{2\,a\,\left(a^2+b^2\right)^2\,f\,(a+b\,\text{Tan}[e+f\,x])}\left(a^2\,\left(2\,(a+i\,b)^2\,(c-i\,d)\,(e+f\,x)+\left(2\,a\,b\,c-a^2\,d+b^2\,d\right)\,\text{Log}\left[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right]\right)+\right.$$
$$b\,\left(2\,(a+i\,b)\,\left(-i\,b^2\,c+a^2\,(c\,(e+f\,x)-i\,d\,(-i+e+f\,x))+a\,b\,(c\,(1+i\,e+i\,f\,x)+d\,(i+e+f\,x))\right)+a\,\left(2\,a\,b\,c-a^2\,d+b^2\,d\right)\right.$$
$$\left.\left.\text{Log}\left[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right]\right)\,\text{Tan}[e+f\,x]+2\,i\,a\,\left(-2\,a\,b\,c+a^2\,d-b^2\,d\right)\,\text{ArcTan}[\text{Tan}[e+f\,x]]\,(a+b\,\text{Tan}[e+f\,x])\right)$$

Problem 1196: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{c+d\,\text{Tan}[e+f\,x]}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 175 leaves, 4 steps) :

$$\frac{\left(a^3\,c-3\,a\,b^2\,c+3\,a^2\,b\,d-b^3\,d\right)\,x}{\left(a^2+b^2\right)^3}+\frac{\left(3\,a^2\,b\,c-b^3\,c-a^3\,d+3\,a\,b^2\,d\right)\,\text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]}{\left(a^2+b^2\right)^3\,f}-$$
$$\frac{b\,c-a\,d}{2\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^2}-\frac{2\,a\,b\,c-a^2\,d+b^2\,d}{\left(a^2+b^2\right)^2\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 3, 854 leaves) :

$$\frac{b^2 (-b c + a d) \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])}{2 (a - i b)^2 (a + i b)^2 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3} +$$

$$\left(\left(a^3 c - 3 a b^2 c + 3 a^2 b d - b^3 d\right) (e + f x) \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])\right) \Big/ \left((a - i b)^3 (a + i b)^3 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3\right) +$$

$$\left(\left(3 i a^9 b c + 3 a^8 b^2 c + 5 i a^7 b^3 c + 5 a^6 b^4 c + i a^5 b^5 c + a^4 b^6 c - i a^3 b^7 c - a^2 b^8 c - i a^{10} d - a^9 b d + i a^8 b^2 d + a^7 b^3 d + 5 i a^6 b^4 d + 5 a^5 b^5 d + 3 i a^4 b^6 d + 3 a^3 b^7 d\right) (e + f x) \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])\right) \Big/ \left(a^2 (a - i b)^6 (a + i b)^5 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3\right) -$$

$$\left(i \left(3 a^2 b c - b^3 c - a^3 d + 3 a b^2 d\right) \operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])\right) \Big/ \left(\left(a^2 + b^2\right)^3 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3\right) +$$

$$\left(\left(3 a^2 b c - b^3 c - a^3 d + 3 a b^2 d\right) \operatorname{Log}\left[(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2\right] \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])\right) \Big/ \left(2 \left(a^2 + b^2\right)^3 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3\right) +$$

$$\left(\operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 \left(3 a b^2 c \operatorname{Sin}[e + f x] - 2 a^2 b d \operatorname{Sin}[e + f x] + b^3 d \operatorname{Sin}[e + f x]\right) (c + d \operatorname{Tan}[e + f x])\right) \Big/ \left(a (a - i b)^2 (a + i b)^2 f (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])^3\right)$$

Problem 1197: Result more than twice size of optimal antiderivative.

$$\int (a + b \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^2 \, dx$$

Optimal (type 3, 215 leaves, 5 steps):

$$-\left(6 a^2 b c d - 2 b^3 c d - a^3 \left(c^2 - d^2\right) + 3 a b^2 \left(c^2 - d^2\right)\right) x - \frac{\left(2 a^3 c d - 6 a b^2 c d + 3 a^2 b \left(c^2 - d^2\right) - b^3 \left(c^2 - d^2\right)\right) \operatorname{Log}[\operatorname{Cos}[e + f x]]}{f} + \frac{2 b (b c + a d) (a c - b d) \operatorname{Tan}[e + f x]}{f} + \frac{\left(2 a c d + b \left(c^2 - d^2\right)\right) (a + b \operatorname{Tan}[e + f x])^2}{2 f} + \frac{2 c d (a + b \operatorname{Tan}[e + f x])^3}{3 f} + \frac{d^2 (a + b \operatorname{Tan}[e + f x])^4}{4 b f}$$

Result (type 3, 800 leaves):

$$\left(\left(-3 a^2 b c^2 + b^3 c^2 - 2 a^3 c d + 6 a b^2 c d + 3 a^2 b d^2 - b^3 d^2\right) \operatorname{Cos}[e + f x]^5 \operatorname{Log}[\operatorname{Cos}[e + f x]] (a + b \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^2\right) \Big/ \left(f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\right) +$$

$$\frac{1}{24 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^3 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2} \operatorname{Cos}[e + f x] \left(6 b^3 c^2 + 36 a b^2 c d + 18 a^2 b d^2 - 6 b^3 d^2 + 9 a^3 c^2 (e + f x) - 27 a b^2 c^2 (e + f x) - 54 a^2 b c d (e + f x) + 18 b^3 c d (e + f x) - 9 a^3 d^2 (e + f x) + 27 a b^2 d^2 (e + f x) + 6 b^3 c^2 \operatorname{Cos}[2 (e + f x)] + 36 a b^2 c d \operatorname{Cos}[2 (e + f x)] + 18 a^2 b d^2 \operatorname{Cos}[2 (e + f x)] - 12 b^3 d^2 \operatorname{Cos}[2 (e + f x)] + 12 a^3 c^2 (e + f x) \operatorname{Cos}[2 (e + f x)] - 36 a b^2 c^2 (e + f x) \operatorname{Cos}[2 (e + f x)] - 72 a^2 b c d (e + f x) \operatorname{Cos}[2 (e + f x)] + 24 b^3 c d (e + f x) \operatorname{Cos}[2 (e + f x)] - 12 a^3 d^2 (e + f x) \operatorname{Cos}[2 (e + f x)] + 36 a b^2 d^2 (e + f x) \operatorname{Cos}[2 (e + f x)] + 3 a^3 c^2 (e + f x) \operatorname{Cos}[4 (e + f x)] - 9 a b^2 c^2 (e + f x) \operatorname{Cos}[4 (e + f x)] - 18 a^2 b c d (e + f x) \operatorname{Cos}[4 (e + f x)] + 6 b^3 c d (e + f x) \operatorname{Cos}[4 (e + f x)] - 3 a^3 d^2 (e + f x) \operatorname{Cos}[4 (e + f x)] + 9 a b^2 d^2 (e + f x) \operatorname{Cos}[4 (e + f x)] + 18 a b^2 c^2 \operatorname{Sin}[2 (e + f x)] + 36 a^2 b c d \operatorname{Sin}[2 (e + f x)] - 8 b^3 c d \operatorname{Sin}[2 (e + f x)] + 6 a^3 d^2 \operatorname{Sin}[2 (e + f x)] - 12 a b^2 d^2 \operatorname{Sin}[2 (e + f x)] + 9 a b^2 c^2 \operatorname{Sin}[4 (e + f x)] + 18 a^2 b c d \operatorname{Sin}[4 (e + f x)] - 8 b^3 c d \operatorname{Sin}[4 (e + f x)] + 3 a^3 d^2 \operatorname{Sin}[4 (e + f x)] - 12 a b^2 d^2 \operatorname{Sin}[4 (e + f x)]\right) (a + b \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])^2$$

Problem 1201: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^2}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 126 leaves, 3 steps):

$$-\frac{(b\,(c-d)-a\,(c+d))\,(a\,(c-d)+b\,(c+d))\,x}{\left(a^2+b^2\right)^2}+\frac{2\,(b\,c-a\,d)\,(a\,c+b\,d)\,\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]}{\left(a^2+b^2\right)^2\,f}-\frac{(b\,c-a\,d)^2}{b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 321 leaves):

$$\frac{1}{\left(a^2+b^2\right)^2\,f\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,(a+b\,\mathrm{Tan}[e+f\,x])^2}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])$$
$$\left(\frac{\left(a^2+b^2\right)\,(b\,c-a\,d)^2\,\mathrm{Sin}[e+f\,x]}{a}+(b\,(-c+d)+a\,(c+d))\,(a\,(c-d)+b\,(c+d))\,(e+f\,x)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])-\right.$$
$$2\,i\,\left(a^2\,c\,d-b^2\,c\,d+a\,b\,\left(-c^2+d^2\right)\right)\,(e+f\,x)\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])+$$
$$2\,i\,\left(a^2\,c\,d-b^2\,c\,d+a\,b\,\left(-c^2+d^2\right)\right)\,\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])-$$
$$\left.\left(a^2\,c\,d-b^2\,c\,d+a\,b\,\left(-c^2+d^2\right)\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\right]\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^2$$

Problem 1202: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^2}{(a+b\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 214 leaves, 4 steps):

$$\frac{\left(6\,a^2\,b\,c\,d-2\,b^3\,c\,d+a^3\,\left(c^2-d^2\right)-3\,a\,b^2\,\left(c^2-d^2\right)\right)\,x}{\left(a^2+b^2\right)^3}-\frac{\left(2\,a^3\,c\,d-6\,a\,b^2\,c\,d-3\,a^2\,b\,\left(c^2-d^2\right)+b^3\,\left(c^2-d^2\right)\right)\,\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]}{\left(a^2+b^2\right)^3\,f}-$$
$$\frac{(b\,c-a\,d)^2}{2\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2}-\frac{2\,(b\,c-a\,d)\,(a\,c+b\,d)}{\left(a^2+b^2\right)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 1564 leaves):

$$\Big(\Big(3\,i\,a^9\,b\,c^2+3\,a^8\,b^2\,c^2+5\,i\,a^7\,b^3\,c^2+5\,a^6\,b^4\,c^2+i\,a^5\,b^5\,c^2+a^4\,b^6\,c^2-i\,a^3\,b^7\,c^2-a^2\,b^8\,c^2-2\,i\,a^{10}\,c\,d-2\,a^9\,b\,c\,d+2\,i\,a^8\,b^2\,c\,d+2\,a^7\,b^3\,c\,d+10\,i\,a^6\,b^4\,c\,d+10\,a^5\,b^5\,c\,d+6\,i\,a^4\,b^6\,c\,d+6\,a^3\,b^7\,c\,d-3\,i\,a^9\,b\,d^2-3\,a^8\,b^2\,d^2-5\,i\,a^7\,b^3\,d^2-5\,a^6\,b^4\,d^2-i\,a^5\,b^5\,d^2-a^4\,b^6\,d^2+i\,a^3\,b^7\,d^2+a^2\,b^8\,d^2\Big)\,(e+f\,x)\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(a^2\,(a-i\,b)^6\,(a+i\,b)^5\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\Big)-$$

$$\Big(i\,\Big(3\,a^2\,b\,c^2-b^3\,c^2-2\,a^3\,c\,d+6\,a\,b^2\,c\,d-3\,a^2\,b\,d^2+b^3\,d^2\Big)\,\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(\Big(a^2+b^2\Big)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\Big)+$$

$$\Big(\Big(3\,a^2\,b\,c^2-b^3\,c^2-2\,a^3\,c\,d+6\,a\,b^2\,c\,d-3\,a^2\,b\,d^2+b^3\,d^2\Big)\,\text{Log}\Big[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\Big]\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(2\,\Big(a^2+b^2\Big)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\Big)+$$

$$\Big(\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,\Big(2\,a^3\,b^3\,c^2+2\,a\,b^5\,c^2-2\,a^4\,b^2\,c\,d+2\,b^6\,c\,d-2\,a^3\,b^3\,d^2-2\,a\,b^5\,d^2+a^6\,c^2\,(e+f\,x)-2\,a^4\,b^2\,c^2\,(e+f\,x)-3\,a^2\,b^4\,c^2\,(e+f\,x)+6\,a^5\,b\,c\,d\,(e+f\,x)+4\,a^3\,b^3\,c\,d\,(e+f\,x)-2\,a\,b^5\,c\,d\,(e+f\,x)-a^6\,d^2\,(e+f\,x)+2\,a^4\,b^2\,d^2\,(e+f\,x)+3\,a^2\,b^4\,d^2\,(e+f\,x)-3\,a^3\,b^3\,c^2\,\text{Cos}[2\,(e+f\,x)]-3\,a\,b^5\,c^2\,\text{Cos}[2\,(e+f\,x)]+4\,a^4\,b^2\,c\,d\,\text{Cos}[2\,(e+f\,x)]+2\,a^2\,b^4\,c\,d\,\text{Cos}[2\,(e+f\,x)]-2\,b^6\,c\,d\,\text{Cos}[2\,(e+f\,x)]-a^5\,b\,d^2\,\text{Cos}[2\,(e+f\,x)]+a^3\,b^3\,d^2\,\text{Cos}[2\,(e+f\,x)]+2\,a\,b^5\,d^2\,\text{Cos}[2\,(e+f\,x)]+a^6\,c^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-4\,a^4\,b^2\,c^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+3\,a^2\,b^4\,c^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+6\,a^5\,b\,c\,d\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-8\,a^3\,b^3\,c\,d\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+2\,a\,b^5\,c\,d\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-a^6\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+4\,a^4\,b^2\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-3\,a^2\,b^4\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+3\,a^4\,b^2\,c^2\,\text{Sin}[2\,(e+f\,x)]+3\,a^2\,b^4\,c^2\,\text{Sin}[2\,(e+f\,x)]-4\,a^5\,b\,c\,d\,\text{Sin}[2\,(e+f\,x)]-2\,a^3\,b^3\,c\,d\,\text{Sin}[2\,(e+f\,x)]+2\,a\,b^5\,c\,d\,\text{Sin}[2\,(e+f\,x)]+a^6\,d^2\,\text{Sin}[2\,(e+f\,x)]-a^4\,b^2\,d^2\,\text{Sin}[2\,(e+f\,x)]-2\,a^2\,b^4\,d^2\,\text{Sin}[2\,(e+f\,x)]+2\,a^5\,b\,c^2\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-6\,a^3\,b^3\,c^2\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]+12\,a^4\,b^2\,c\,d\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-4\,a^2\,b^4\,c\,d\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-2\,a^5\,b\,d^2\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]+6\,a^3\,b^3\,d^2\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]\Big)\,(c+d\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(2\,a\,(a-i\,b)^3\,(a+i\,b)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\Big)$$

- **Problem 1203: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^3\,dx$$

Optimal (type 3, 302 leaves, 6 steps):

$$-(a\,c-b\,d)\,\Big(8\,a\,b\,c\,d-a^2\,\Big(c^2-3\,d^2\Big)+b^2\,\Big(3\,c^2-d^2\Big)\Big)\,x+\frac{(b\,c+a\,d)\,\Big(8\,a\,b\,c\,d+b^2\,\Big(c^2-3\,d^2\Big)-a^2\,\Big(3\,c^2-d^2\Big)\Big)\,\text{Log}[\text{Cos}[e+f\,x]]}{f}+\frac{d\,\Big(2\,a^3\,c\,d-6\,a\,b^2\,c\,d+3\,a^2\,b\,\Big(c^2-d^2\Big)-b^3\,\Big(c^2-d^2\Big)\Big)\,\text{Tan}[e+f\,x]}{f}+\frac{\Big(3\,a^2\,b\,c-b^3\,c+a^3\,d-3\,a\,b^2\,d\Big)\,(c+d\,\text{Tan}[e+f\,x])^2}{2\,f}+\frac{b\,\Big(3\,a^2-b^2\Big)\,(c+d\,\text{Tan}[e+f\,x])^3}{3\,f}-\frac{b^2\,(b\,c-11\,a\,d)\,(c+d\,\text{Tan}[e+f\,x])^4}{20\,d^2\,f}+\frac{b^2\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^4}{5\,d\,f}$$

Result (type 3, 1279 leaves):

$$\left(\left(-3 a^2 b c^3+b^3 c^3-3 a^3 c^2 d+9 a b^2 c^2 d+9 a^2 b c d^2-3 b^3 c d^2+a^3 d^3-3 a b^2 d^3\right) \text{Cos}[e+f x]^6 \text{Log}[\text{Cos}[e+f x]]\right.$$
$$\left.(a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\right)+$$
$$\left(\text{Cos}[e+f x] \left(90 b^3 c^3 \text{Cos}[e+f x]+810 a b^2 c^2 d \text{Cos}[e+f x]+810 a^2 b c d^2 \text{Cos}[e+f x]-360 b^3 c d^2 \text{Cos}[e+f x]+90 a^3 d^3 \text{Cos}[e+f x]-\right.\right.$$
$$360 a b^2 d^3 \text{Cos}[e+f x]+150 a^3 c^3 (e+f x) \text{Cos}[e+f x]-450 a b^2 c^3 (e+f x) \text{Cos}[e+f x]-1350 a^2 b c^2 d (e+f x) \text{Cos}[e+f x]+$$
$$450 b^3 c^2 d (e+f x) \text{Cos}[e+f x]-450 a^3 c d^2 (e+f x) \text{Cos}[e+f x]+1350 a b^2 c d^2 (e+f x) \text{Cos}[e+f x]+450 a^2 b d^3 (e+f x) \text{Cos}[e+f x]-$$
$$150 b^3 d^3 (e+f x) \text{Cos}[e+f x]+30 b^3 c^3 \text{Cos}[3 (e+f x)]+270 a b^2 c^2 d \text{Cos}[3 (e+f x)]+270 a^2 b c d^2 \text{Cos}[3 (e+f x)]-$$
$$180 b^3 c d^2 \text{Cos}[3 (e+f x)]+30 a^3 d^3 \text{Cos}[3 (e+f x)]-180 a b^2 d^3 \text{Cos}[3 (e+f x)]+75 a^3 c^3 (e+f x) \text{Cos}[3 (e+f x)]-$$
$$225 a b^2 c^3 (e+f x) \text{Cos}[3 (e+f x)]-675 a^2 b c^2 d (e+f x) \text{Cos}[3 (e+f x)]+225 b^3 c^2 d (e+f x) \text{Cos}[3 (e+f x)]-$$
$$225 a^3 c d^2 (e+f x) \text{Cos}[3 (e+f x)]+675 a b^2 c d^2 (e+f x) \text{Cos}[3 (e+f x)]+225 a^2 b d^3 (e+f x) \text{Cos}[3 (e+f x)]-$$
$$75 b^3 d^3 (e+f x) \text{Cos}[3 (e+f x)]+15 a^3 c^3 (e+f x) \text{Cos}[5 (e+f x)]-45 a b^2 c^3 (e+f x) \text{Cos}[5 (e+f x)]-$$
$$135 a^2 b c^2 d (e+f x) \text{Cos}[5 (e+f x)]+45 b^3 c^2 d (e+f x) \text{Cos}[5 (e+f x)]-45 a^3 c d^2 (e+f x) \text{Cos}[5 (e+f x)]+$$
$$135 a b^2 c d^2 (e+f x) \text{Cos}[5 (e+f x)]+45 a^2 b d^3 (e+f x) \text{Cos}[5 (e+f x)]-15 b^3 d^3 (e+f x) \text{Cos}[5 (e+f x)]+$$
$$90 a b^2 c^3 \text{Sin}[e+f x]+270 a^2 b c^2 d \text{Sin}[e+f x]-60 b^3 c^2 d \text{Sin}[e+f x]+90 a^3 c d^2 \text{Sin}[e+f x]-180 a b^2 c d^2 \text{Sin}[e+f x]-$$
$$60 a^2 b d^3 \text{Sin}[e+f x]+50 b^3 d^3 \text{Sin}[e+f x]+135 a b^2 c^3 \text{Sin}[3 (e+f x)]+405 a^2 b c^2 d \text{Sin}[3 (e+f x)]-120 b^3 c^2 d \text{Sin}[3 (e+f x)]+$$
$$135 a^3 c d^2 \text{Sin}[3 (e+f x)]-360 a b^2 c d^2 \text{Sin}[3 (e+f x)]-120 a^2 b d^3 \text{Sin}[3 (e+f x)]+25 b^3 d^3 \text{Sin}[3 (e+f x)]+$$
$$45 a b^2 c^3 \text{Sin}[5 (e+f x)]+135 a^2 b c^2 d \text{Sin}[5 (e+f x)]-60 b^3 c^2 d \text{Sin}[5 (e+f x)]+45 a^3 c d^2 \text{Sin}[5 (e+f x)]-$$
$$\left.\left.180 a b^2 c d^2 \text{Sin}[5 (e+f x)]-60 a^2 b d^3 \text{Sin}[5 (e+f x)]+23 b^3 d^3 \text{Sin}[5 (e+f x)]\right) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right) \Big/$$
$$\left(240 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\right)$$

- **Problem 1204: Result more than twice size of optimal antiderivative.**

$$\int (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3 \, dx$$

Optimal (type 3, 219 leaves, 5 steps) :

$$-\left(b^2 c \left(c^2-3 d^2\right)+2 a b d \left(3 c^2-d^2\right)-a^2 \left(c^3-3 c d^2\right)\right) x-\frac{\left(2 a b c \left(c^2-3 d^2\right)-b^2 d \left(3 c^2-d^2\right)+a^2 \left(3 c^2 d-d^3\right)\right) \text{Log}[\text{Cos}[e+f x]]}{f}+$$
$$\frac{2 d (b c+a d) (a c-b d) \text{Tan}[e+f x]}{f}+\frac{\left(2 a b c+a^2 d-b^2 d\right) (c+d \text{Tan}[e+f x])^2}{2 f}+\frac{2 a b (c+d \text{Tan}[e+f x])^3}{3 f}+\frac{b^2 (c+d \text{Tan}[e+f x])^4}{4 d f}$$

Result (type 3, 800 leaves) :

$$\left(\left(-2\,a\,b\,c^3-3\,a^2\,c^2\,d+3\,b^2\,c^2\,d+6\,a\,b\,c\,d^2+a^2\,d^3-b^2\,d^3\right)\,\text{Cos}[e+f\,x]^5\,\text{Log}[\text{Cos}[e+f\,x]]\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/$$
$$\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\right)+$$
$$\frac{1}{24\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3}\,\text{Cos}[e+f\,x]$$
$$\Big(18\,b^2\,c^2\,d+36\,a\,b\,c\,d^2+6\,a^2\,d^3-6\,b^2\,d^3+9\,a^2\,c^3\,(e+f\,x)-9\,b^2\,c^3\,(e+f\,x)-54\,a\,b\,c^2\,d\,(e+f\,x)-27\,a^2\,c\,d^2\,(e+f\,x)+27\,b^2\,c\,d^2\,(e+f\,x)+$$
$$18\,a\,b\,d^3\,(e+f\,x)+18\,b^2\,c^2\,d\,\text{Cos}[2\,(e+f\,x)]+36\,a\,b\,c\,d^2\,\text{Cos}[2\,(e+f\,x)]+6\,a^2\,d^3\,\text{Cos}[2\,(e+f\,x)]-12\,b^2\,d^3\,\text{Cos}[2\,(e+f\,x)]+$$
$$12\,a^2\,c^3\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-12\,b^2\,c^3\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-72\,a\,b\,c^2\,d\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-$$
$$36\,a^2\,c\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+36\,b^2\,c\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+24\,a\,b\,d^3\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+$$
$$3\,a^2\,c^3\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]-3\,b^2\,c^3\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]-18\,a\,b\,c^2\,d\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]-9\,a^2\,c\,d^2\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]+$$
$$9\,b^2\,c\,d^2\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]+6\,a\,b\,d^3\,(e+f\,x)\,\text{Cos}[4\,(e+f\,x)]+6\,b^2\,c^3\,\text{Sin}[2\,(e+f\,x)]+36\,a\,b\,c^2\,d\,\text{Sin}[2\,(e+f\,x)]+$$
$$18\,a^2\,c\,d^2\,\text{Sin}[2\,(e+f\,x)]-12\,b^2\,c\,d^2\,\text{Sin}[2\,(e+f\,x)]-8\,a\,b\,d^3\,\text{Sin}[2\,(e+f\,x)]+3\,b^2\,c^3\,\text{Sin}[4\,(e+f\,x)]+18\,a\,b\,c^2\,d\,\text{Sin}[4\,(e+f\,x)]+$$
$$9\,a^2\,c\,d^2\,\text{Sin}[4\,(e+f\,x)]-12\,b^2\,c\,d^2\,\text{Sin}[4\,(e+f\,x)]-8\,a\,b\,d^3\,\text{Sin}[4\,(e+f\,x)]\Big)\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3$$

- **Problem 1207: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^3}{(a+b\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 230 leaves, 5 steps):

$$-\frac{\left(b^2\,c\,\left(c^2-3\,d^2\right)-2\,a\,b\,d\,\left(3\,c^2-d^2\right)-a^2\,\left(c^3-3\,c\,d^2\right)\right)\,x}{\left(a^2+b^2\right)^2}+\frac{\left(2\,a\,b\,c\,\left(c^2-3\,d^2\right)+b^2\,d\,\left(3\,c^2-d^2\right)-a^2\,\left(3\,c^2\,d-d^3\right)\right)\,\text{Log}[\text{Cos}[e+f\,x]]}{\left(a^2+b^2\right)^2\,f}+$$
$$\frac{(b\,c-a\,d)^2\,\left(2\,a\,b\,c+a^2\,d+3\,b^2\,d\right)\,\text{Log}[a+b\,\text{Tan}[e+f\,x]]}{b^2\,\left(a^2+b^2\right)^2\,f}-\frac{(b\,c-a\,d)^2\,(c+d\,\text{Tan}[e+f\,x])}{b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type 3, 1031 leaves):

$$\left(\left(a^2\,c^3-b^2\,c^3+6\,a\,b\,c^2\,d-3\,a^2\,c\,d^2+3\,b^2\,c\,d^2-2\,a\,b\,d^3\right)\,(e+f\,x)\,\text{Cos}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/$$
$$\left((a-i\,b)^2\,(a+i\,b)^2\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\right)-$$
$$\Big(i\,\Big(-2\,a^6\,b^4\,c^3+2\,i\,a^5\,b^5\,c^3-2\,a^4\,b^6\,c^3+2\,i\,a^3\,b^7\,c^3+3\,a^7\,b^3\,c^2\,d-3\,i\,a^6\,b^4\,c^2\,d-3\,a^3\,b^7\,c^2\,d+3\,i\,a^2\,b^8\,c^2\,d+6\,a^6\,b^4\,c\,d^2-6\,i\,a^5\,b^5\,c\,d^2+$$
$$6\,a^4\,b^6\,c\,d^2-6\,i\,a^3\,b^7\,c\,d^2-a^9\,b\,d^3+i\,a^8\,b^2\,d^3-4\,a^7\,b^3\,d^3+4\,i\,a^6\,b^4\,d^3-3\,a^5\,b^5\,d^3+3\,i\,a^4\,b^6\,d^3\Big)\,(e+f\,x)\,\text{Cos}[e+f\,x]$$
$$(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)\Big/\left(a^2\,(a-i\,b)^4\,(a+i\,b)^3\,b^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\right)-$$
$$\Big(i\,\left(2\,a\,b^3\,c^3-3\,a^2\,b^2\,c^2\,d+3\,b^4\,c^2\,d-6\,a\,b^3\,c\,d^2+a^4\,d^3+3\,a^2\,b^2\,d^3\right)\,\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Cos}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2$$
$$(c+d\,\text{Tan}[e+f\,x])^3\Big)\Big/\left(b^2\,\left(a^2+b^2\right)^2\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\right)-$$
$$\frac{d^3\,\text{Cos}[e+f\,x]\,\text{Log}[\text{Cos}[e+f\,x]]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3}{b^2\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2}+$$
$$\Big(\left(2\,a\,b^3\,c^3-3\,a^2\,b^2\,c^2\,d+3\,b^4\,c^2\,d-6\,a\,b^3\,c\,d^2+a^4\,d^3+3\,a^2\,b^2\,d^3\right)\,\text{Cos}[e+f\,x]\,\text{Log}\left[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right]$$
$$(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)\Big/\left(2\,b^2\,\left(a^2+b^2\right)^2\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\right)+$$
$$\Big(\text{Cos}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,\left(b^3\,c^3\,\text{Sin}[e+f\,x]-3\,a\,b^2\,c^2\,d\,\text{Sin}[e+f\,x]+3\,a^2\,b\,c\,d^2\,\text{Sin}[e+f\,x]-a^3\,d^3\,\text{Sin}[e+f\,x]\right)$$
$$(c+d\,\text{Tan}[e+f\,x])^3\Big)\Big/\left(a\,(a-i\,b)\,(a+i\,b)\,b\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\right)$$

■ Problem 1208: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f x])^3}{(a+b\,\mathrm{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 239 leaves, 4 steps):

$$\frac{(a c+b d)\left(8 a b c d+a^2\left(c^2-3 d^2\right)-b^2\left(3 c^2-d^2\right)\right) x}{\left(a^2+b^2\right)^3}+\frac{(b c-a d)\left(8 a b c d-b^2\left(c^2-3 d^2\right)+a^2\left(3 c^2-d^2\right)\right) \mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]}{\left(a^2+b^2\right)^3 f}-\frac{(b c-a d)^2\left(4 a b c+a^2 d+5 b^2 d\right)}{2 b^2\left(a^2+b^2\right)^2 f\,(a+b\,\mathrm{Tan}[e+f x])}-\frac{(b c-a d)^2\,(c+d\,\mathrm{Tan}[e+f x])}{2 b\left(a^2+b^2\right) f\,(a+b\,\mathrm{Tan}[e+f x])^2}$$

Result (type 3, 2013 leaves):

$$\begin{aligned}
&\Big(\Big(3 i a^9 b c^3+3 a^8 b^2 c^3+5 i a^7 b^3 c^3+5 a^6 b^4 c^3+i a^5 b^5 c^3+a^4 b^6 c^3-i a^3 b^7 c^3-a^2 b^8 c^3-3 i a^{10} c^2 d-3 a^9 b c^2 d+3 i a^8 b^2 c^2 d+3 a^7 b^3 c^2 d+\\
&\quad 15 i a^6 b^4 c^2 d+15 a^5 b^5 c^2 d+9 i a^4 b^6 c^2 d+9 a^3 b^7 c^2 d-9 i a^9 b c d^2-9 a^8 b^2 c d^2-15 i a^7 b^3 c d^2-15 a^6 b^4 c d^2-3 i a^5 b^5 c d^2-\\
&\quad 3 a^4 b^6 c d^2+3 i a^3 b^7 c d^2+3 a^2 b^8 c d^2+i a^{10} d^3+a^9 b d^3-i a^8 b^2 d^3-a^7 b^3 d^3-5 i a^6 b^4 d^3-5 a^5 b^5 d^3-3 i a^4 b^6 d^3-3 a^3 b^7 d^3\Big)(e+f x)\\
&\quad (a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3 (c+d\,\mathrm{Tan}[e+f x])^3\Big)\Big/\left(a^2 (a-i b)^6 (a+i b)^5 f\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3 (a+b\,\mathrm{Tan}[e+f x])^3\right)-\\
&\Big(i\left(3 a^2 b c^3-b^3 c^3-3 a^3 c^2 d+9 a b^2 c^2 d-9 a^2 b c d^2+3 b^3 c d^2+a^3 d^3-3 a b^2 d^3\right) \mathrm{ArcTan}[\mathrm{Tan}[e+f x]]\\
&\quad (a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3 (c+d\,\mathrm{Tan}[e+f x])^3\Big)\Big/\left(\left(a^2+b^2\right)^3 f\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3 (a+b\,\mathrm{Tan}[e+f x])^3\right)+\\
&\Big(\left(3 a^2 b c^3-b^3 c^3-3 a^3 c^2 d+9 a b^2 c^2 d-9 a^2 b c d^2+3 b^3 c d^2+a^3 d^3-3 a b^2 d^3\right) \mathrm{Log}\left[(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\right]\\
&\quad (a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3 (c+d\,\mathrm{Tan}[e+f x])^3\Big)\Big/\left(2\left(a^2+b^2\right)^3 f\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3 (a+b\,\mathrm{Tan}[e+f x])^3\right)+\\
&\Big((a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])\,\Big(2 a^3 b^3 c^3+2 a b^5 c^3-3 a^4 b^2 c^2 d+3 b^6 c^2 d-6 a^3 b^3 c d^2-6 a b^5 c d^2+a^6 d^3+4 a^4 b^2 d^3+3 a^2 b^4 d^3+\\
&\quad a^6 c^3 (e+f x)-2 a^4 b^2 c^3 (e+f x)-3 a^2 b^4 c^3 (e+f x)+9 a^5 b c^2 d (e+f x)+6 a^3 b^3 c^2 d (e+f x)-3 a b^5 c^2 d (e+f x)-\\
&\quad 3 a^6 c d^2 (e+f x)+6 a^4 b^2 c d^2 (e+f x)+9 a^2 b^4 c d^2 (e+f x)-3 a^5 b d^3 (e+f x)-2 a^3 b^3 d^3 (e+f x)+a b^5 d^3 (e+f x)-\\
&\quad 3 a^3 b^3 c^3 \mathrm{Cos}[2 (e+f x)]-3 a b^5 c^3 \mathrm{Cos}[2 (e+f x)]+6 a^4 b^2 c^2 d\,\mathrm{Cos}[2 (e+f x)]+3 a^2 b^4 c^2 d\,\mathrm{Cos}[2 (e+f x)]-3 b^6 c^2 d\,\mathrm{Cos}[2 (e+f x)]-\\
&\quad 3 a^5 b c d^2 \mathrm{Cos}[2 (e+f x)]+3 a^3 b^3 c d^2 \mathrm{Cos}[2 (e+f x)]+6 a b^5 c d^2 \mathrm{Cos}[2 (e+f x)]-3 a^4 b^2 d^3 \mathrm{Cos}[2 (e+f x)]-3 a^2 b^4 d^3 \mathrm{Cos}[2 (e+f x)]+\\
&\quad a^6 c^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]-4 a^4 b^2 c^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]+3 a^2 b^4 c^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]+9 a^5 b c^2 d (e+f x)\,\mathrm{Cos}[2 (e+f x)]-\\
&\quad 12 a^3 b^3 c^2 d (e+f x)\,\mathrm{Cos}[2 (e+f x)]+3 a b^5 c^2 d (e+f x)\,\mathrm{Cos}[2 (e+f x)]-3 a^6 c d^2 (e+f x)\,\mathrm{Cos}[2 (e+f x)]+12 a^4 b^2 c d^2 (e+f x)\\
&\quad \mathrm{Cos}[2 (e+f x)]-9 a^2 b^4 c d^2 (e+f x)\,\mathrm{Cos}[2 (e+f x)]-3 a^5 b d^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]+4 a^3 b^3 d^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]-\\
&\quad a b^5 d^3 (e+f x)\,\mathrm{Cos}[2 (e+f x)]+3 a^4 b^2 c^3 \mathrm{Sin}[2 (e+f x)]+3 a^2 b^4 c^3 \mathrm{Sin}[2 (e+f x)]-6 a^5 b c^2 d\,\mathrm{Sin}[2 (e+f x)]-\\
&\quad 3 a^3 b^3 c^2 d\,\mathrm{Sin}[2 (e+f x)]+3 a b^5 c^2 d\,\mathrm{Sin}[2 (e+f x)]+3 a^6 c d^2 \mathrm{Sin}[2 (e+f x)]-3 a^4 b^2 c d^2 \mathrm{Sin}[2 (e+f x)]-6 a^2 b^4 c d^2 \mathrm{Sin}[2 (e+f x)]+\\
&\quad 3 a^5 b d^3 \mathrm{Sin}[2 (e+f x)]+3 a^3 b^3 d^3 \mathrm{Sin}[2 (e+f x)]+2 a^5 b c^3 (e+f x)\,\mathrm{Sin}[2 (e+f x)]-6 a^3 b^3 c^3 (e+f x)\,\mathrm{Sin}[2 (e+f x)]+\\
&\quad 18 a^4 b^2 c^2 d (e+f x)\,\mathrm{Sin}[2 (e+f x)]-6 a^2 b^4 c^2 d (e+f x)\,\mathrm{Sin}[2 (e+f x)]-6 a^5 b c d^2 (e+f x)\,\mathrm{Sin}[2 (e+f x)]+\\
&\quad 18 a^3 b^3 c d^2 (e+f x)\,\mathrm{Sin}[2 (e+f x)]-6 a^4 b^2 d^3 (e+f x)\,\mathrm{Sin}[2 (e+f x)]+2 a^2 b^4 d^3 (e+f x)\,\mathrm{Sin}[2 (e+f x)]\Big)(c+d\,\mathrm{Tan}[e+f x])^3\Big)\Big/\\
&\left(2 a (a-i b)^3 (a+i b)^3 f\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3 (a+b\,\mathrm{Tan}[e+f x])^3\right)
\end{aligned}$$

■ Problem 1209: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f x])^4}{c+d\,\mathrm{Tan}[e+f x]}\,dx$$

Optimal (type 3, 190 leaves, 6 steps):

$$\frac{\left(a^4 c-6 a^2 b^2 c+b^4 c+4 a^3 b d-4 a b^3 d\right) x}{c^2+d^2}-\frac{\left(4 a^3 b c-4 a b^3 c-a^4 d+6 a^2 b^2 d-b^4 d\right) \text{Log}[\text{Cos}[e+f x]]}{\left(c^2+d^2\right) f}+$$
$$\frac{(b c-a d)^4 \text{Log}[c+d \text{Tan}[e+f x]]}{d^3 \left(c^2+d^2\right) f}-\frac{b^3 (b c-3 a d) \text{Tan}[e+f x]}{d^2 f}+\frac{b^2 (a+b \text{Tan}[e+f x])^2}{2 d f}$$

Result (type 3, 578 leaves) :

$$\frac{b^4 \text{Cos}[e+f x] (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^4}{2 d f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^4 (c+d \text{Tan}[e+f x])}+$$
$$\left(\left(a^4 c-6 a^2 b^2 c+b^4 c+4 a^3 b d-4 a b^3 d\right) (e+f x) \text{Cos}[e+f x]^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^4\right) /$$
$$\left((c-i d) (c+i d) f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^4 (c+d \text{Tan}[e+f x])\right)+$$
$$\left(\left(-b^4 c^2+4 a b^3 c d-6 a^2 b^2 d^2+b^4 d^2\right) \text{Cos}[e+f x]^3 \text{Log}[\text{Cos}[e+f x]] (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^4\right) /$$
$$\left(d^3 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^4 (c+d \text{Tan}[e+f x])\right)+$$
$$\left(\left(b^4 c^4-4 a b^3 c^3 d+6 a^2 b^2 c^2 d^2-4 a^3 b c d^3+a^4 d^4\right) \text{Cos}[e+f x]^3 \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]\right.$$
$$\left.(c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) (a+b \text{Tan}[e+f x])^4\right) / \left(d^3 \left(c^2+d^2\right) f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^4 (c+d \text{Tan}[e+f x])\right)+$$
$$\left(\text{Cos}[e+f x]^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) \left(-b^4 c \text{Sin}[e+f x]+4 a b^3 d \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^4\right) /$$
$$\left(d^2 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^4 (c+d \text{Tan}[e+f x])\right)$$

- **Problem 1214: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])} \, dx$$

Optimal (type 3, 183 leaves, 4 steps) :

$$\frac{\left(a^2 c-b^2 c-2 a b d\right) x}{\left(a^2+b^2\right)^2 \left(c^2+d^2\right)}+\frac{b^2 \left(2 a b c-3 a^2 d-b^2 d\right) \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]}{\left(a^2+b^2\right)^2 (b c-a d)^2 f}+$$
$$\frac{d^3 \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{(b c-a d)^2 \left(c^2+d^2\right) f}-\frac{b^2}{\left(a^2+b^2\right) (b c-a d) f (a+b \text{Tan}[e+f x])}$$

Result (type 3, 1330 leaves) :

$$\Big(\big(a^2 c - b^2 c - 2 a b d\big) (e + f x) \operatorname{Sec}[e + f x]^3 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\Big) \Big/ \Big((a - i b)^2 (a + i b)^2 (c - i d) (c + i d) f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])\Big) -$$
$$\Big(\big(2 i a^6 b^4 c^8 + 2 a^5 b^5 c^8 + 2 i a^4 b^6 c^8 + 2 a^3 b^7 c^8 - 5 i a^7 b^3 c^7 d - 5 a^6 b^4 c^7 d - 6 i a^5 b^5 c^7 d - 6 a^4 b^6 c^7 d - i a^3 b^7 c^7 d - a^2 b^8 c^7 d + 3 i a^8 b^2 c^6 d^2 + 3 a^7 b^3 c^6 d^2 + 8 i a^6 b^4 c^6 d^2 + 8 a^5 b^5 c^6 d^2 + 5 i a^4 b^6 c^6 d^2 + 5 a^3 b^7 c^6 d^2 - 10 i a^7 b^3 c^5 d^3 - 10 a^6 b^4 c^5 d^3 - 12 i a^5 b^5 c^5 d^3 - 12 a^4 b^6 c^5 d^3 - 2 i a^3 b^7 c^5 d^3 - 2 a^2 b^8 c^5 d^3 + 6 i a^8 b^2 c^4 d^4 + 6 a^7 b^3 c^4 d^4 + 10 i a^6 b^4 c^4 d^4 + 10 a^5 b^5 c^4 d^4 + 4 i a^4 b^6 c^4 d^4 + 4 a^3 b^7 c^4 d^4 - 5 i a^7 b^3 c^3 d^5 - 5 a^6 b^4 c^3 d^5 - 6 i a^5 b^5 c^3 d^5 - 6 a^4 b^6 c^3 d^5 - i a^3 b^7 c^3 d^5 - a^2 b^8 c^3 d^5 + 3 i a^8 b^2 c^2 d^6 + 3 a^7 b^3 c^2 d^6 + 4 i a^6 b^4 c^2 d^6 + 4 a^5 b^5 c^2 d^6 + i a^4 b^6 c^2 d^6 + a^3 b^7 c^2 d^6\big) (e + f x) \operatorname{Sec}[e + f x]^3 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\Big) \Big/ \Big(a^2 (a - i b)^4 (a + i b)^3 c^2 (c - i d) (c + i d) (-b c + a d)^3 \big(c^2 + d^2\big) f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])\Big) -$$
$$\Big(i \big(2 a b^3 c - 3 a^2 b^2 d - b^4 d\big) \operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Sec}[e + f x]^3 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\Big) \Big/ \Big(\big(a^2 + b^2\big)^2 (-b c + a d)^2 f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])\Big) +$$
$$\Big(\big(2 a b^3 c - 3 a^2 b^2 d - b^4 d\big) \operatorname{Log}\big[(a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2\big] \operatorname{Sec}[e + f x]^3 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\Big) \Big/ \Big(2 \big(a^2 + b^2\big)^2 (-b c + a d)^2 f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])\Big) +$$
$$\Big(d^3 \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]] \operatorname{Sec}[e + f x]^3 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x])^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])\Big) \Big/ \Big((b c - a d)^2 \big(c^2 + d^2\big) f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])\Big) -$$
$$\frac{b^3 \operatorname{Sec}[e + f x]^2 (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) \operatorname{Tan}[e + f x]}{a (a - i b) (a + i b) (-b c + a d) f (a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])}$$

- **Problem 1215: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a + b \operatorname{Tan}[e + f x])^3 (c + d \operatorname{Tan}[e + f x])} \, dx$$

Optimal (type 3, 279 leaves, 5 steps) :

$$\frac{\big(a^3 c - 3 a b^2 c - 3 a^2 b d + b^3 d\big) x}{\big(a^2 + b^2\big)^3 \big(c^2 + d^2\big)} - \frac{b^2 \big(8 a^3 b c d - 6 a^4 d^2 + b^4 \big(c^2 - d^2\big) - 3 a^2 b^2 \big(c^2 + d^2\big)\big) \operatorname{Log}[a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]]}{\big(a^2 + b^2\big)^3 (b c - a d)^3 f} -$$
$$\frac{d^4 \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(b c - a d)^3 \big(c^2 + d^2\big) f} - \frac{b^2}{2 \big(a^2 + b^2\big) (b c - a d) f (a + b \operatorname{Tan}[e + f x])^2} - \frac{b^2 \big(2 a b c - 3 a^2 d - b^2 d\big)}{\big(a^2 + b^2\big)^2 (b c - a d)^2 f (a + b \operatorname{Tan}[e + f x])}$$

Result (type 3, 2280 leaves) :

$$\frac{b^4\,\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(-b\,c+a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])}+$$

$$\Big(\big(a^3\,c-3\,a\,b^2\,c-3\,a^2\,b\,d+b^3\,d\big)\,(e+f x)\,\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$
$$\Big((a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^3\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\big(-3\,\mathrm{i}\,a^9\,b^6\,c^{10}-3\,a^8\,b^7\,c^{10}-5\,\mathrm{i}\,a^7\,b^8\,c^{10}-5\,a^6\,b^9\,c^{10}-\mathrm{i}\,a^5\,b^{10}\,c^{10}-a^4\,b^{11}\,c^{10}+\mathrm{i}\,a^3\,b^{12}\,c^{10}+a^2\,b^{13}\,c^{10}+14\,\mathrm{i}\,a^{10}\,b^5\,c^9\,d+14\,a^9\,b^6\,c^9\,d+$$
$$26\,\mathrm{i}\,a^8\,b^7\,c^9\,d+26\,a^7\,b^8\,c^9\,d+10\,\mathrm{i}\,a^6\,b^9\,c^9\,d+10\,a^5\,b^{10}\,c^9\,d-2\,\mathrm{i}\,a^4\,b^{11}\,c^9\,d-2\,a^3\,b^{12}\,c^9\,d-25\,\mathrm{i}\,a^{11}\,b^4\,c^8\,d^2-25\,a^{10}\,b^5\,c^8\,d^2-$$
$$58\,\mathrm{i}\,a^9\,b^6\,c^8\,d^2-58\,a^8\,b^7\,c^8\,d^2-40\,\mathrm{i}\,a^7\,b^8\,c^8\,d^2-40\,a^6\,b^9\,c^8\,d^2-6\,\mathrm{i}\,a^5\,b^{10}\,c^8\,d^2-6\,a^4\,b^{11}\,c^8\,d^2+\mathrm{i}\,a^3\,b^{12}\,c^8\,d^2+a^2\,b^{13}\,c^8\,d^2+$$
$$20\,\mathrm{i}\,a^{12}\,b^3\,c^7\,d^3+20\,a^{11}\,b^4\,c^7\,d^3+74\,\mathrm{i}\,a^{10}\,b^5\,c^7\,d^3+74\,a^9\,b^6\,c^7\,d^3+86\,\mathrm{i}\,a^8\,b^7\,c^7\,d^3+86\,a^7\,b^8\,c^7\,d^3+30\,\mathrm{i}\,a^6\,b^9\,c^7\,d^3+30\,a^5\,b^{10}\,c^7\,d^3-$$
$$2\,\mathrm{i}\,a^4\,b^{11}\,c^7\,d^3-2\,a^3\,b^{12}\,c^7\,d^3-6\,\mathrm{i}\,a^{13}\,b^2\,c^6\,d^4-6\,a^{12}\,b^3\,c^6\,d^4-65\,\mathrm{i}\,a^{11}\,b^4\,c^6\,d^4-65\,a^{10}\,b^5\,c^6\,d^4-120\,\mathrm{i}\,a^9\,b^6\,c^6\,d^4-120\,a^8\,b^7\,c^6\,d^4-$$
$$70\,\mathrm{i}\,a^7\,b^8\,c^6\,d^4-70\,a^6\,b^9\,c^6\,d^4-10\,\mathrm{i}\,a^5\,b^{10}\,c^6\,d^4-10\,a^4\,b^{11}\,c^6\,d^4-\mathrm{i}\,a^3\,b^{12}\,c^6\,d^4-a^2\,b^{13}\,c^6\,d^4+40\,\mathrm{i}\,a^{12}\,b^3\,c^5\,d^5+40\,a^{11}\,b^4\,c^5\,d^5+$$
$$106\,\mathrm{i}\,a^{10}\,b^5\,c^5\,d^5+106\,a^9\,b^6\,c^5\,d^5+94\,\mathrm{i}\,a^8\,b^7\,c^5\,d^5+94\,a^7\,b^8\,c^5\,d^5+30\,\mathrm{i}\,a^6\,b^9\,c^5\,d^5+30\,a^5\,b^{10}\,c^5\,d^5+2\,\mathrm{i}\,a^4\,b^{11}\,c^5\,d^5+2\,a^3\,b^{12}\,c^5\,d^5-$$
$$12\,\mathrm{i}\,a^{13}\,b^2\,c^4\,d^6-12\,a^{12}\,b^3\,c^4\,d^6-55\,\mathrm{i}\,a^{11}\,b^4\,c^4\,d^6-55\,a^{10}\,b^5\,c^4\,d^6-78\,\mathrm{i}\,a^9\,b^6\,c^4\,d^6-78\,a^8\,b^7\,c^4\,d^6-40\,\mathrm{i}\,a^7\,b^8\,c^4\,d^6-40\,a^6\,b^9\,c^4\,d^6-$$
$$6\,\mathrm{i}\,a^5\,b^{10}\,c^4\,d^6-6\,a^4\,b^{11}\,c^4\,d^6-\mathrm{i}\,a^3\,b^{12}\,c^4\,d^6-a^2\,b^{13}\,c^4\,d^6+20\,\mathrm{i}\,a^{12}\,b^3\,c^3\,d^7+20\,a^{11}\,b^4\,c^3\,d^7+46\,\mathrm{i}\,a^{10}\,b^5\,c^3\,d^7+46\,a^9\,b^6\,c^3\,d^7+$$
$$34\,\mathrm{i}\,a^8\,b^7\,c^3\,d^7+34\,a^7\,b^8\,c^3\,d^7+10\,\mathrm{i}\,a^6\,b^9\,c^3\,d^7+10\,a^5\,b^{10}\,c^3\,d^7+2\,\mathrm{i}\,a^4\,b^{11}\,c^3\,d^7+2\,a^3\,b^{12}\,c^3\,d^7-6\,\mathrm{i}\,a^{13}\,b^2\,c^2\,d^8-6\,a^{12}\,b^3\,c^2\,d^8-$$
$$15\,\mathrm{i}\,a^{11}\,b^4\,c^2\,d^8-15\,a^{10}\,b^5\,c^2\,d^8-13\,\mathrm{i}\,a^9\,b^6\,c^2\,d^8-13\,a^8\,b^7\,c^2\,d^8-5\,\mathrm{i}\,a^7\,b^8\,c^2\,d^8-5\,a^6\,b^9\,c^2\,d^8-\mathrm{i}\,a^5\,b^{10}\,c^2\,d^8-a^4\,b^{11}\,c^2\,d^8\big)$$
$$(e+f x)\,\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$
$$\Big(a^2\,(a-\mathrm{i}\,b)^6\,(a+\mathrm{i}\,b)^5\,c^2\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,(-b\,c+a\,d)^5\,\big(c^2+d^2\big)\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)-$$

$$\Big(\mathrm{i}\,\big(-3\,a^2\,b^4\,c^2+b^6\,c^2+8\,a^3\,b^3\,c\,d-6\,a^4\,b^2\,d^2-3\,a^2\,b^4\,d^2-b^6\,d^2\big)\,\mathrm{ArcTan}[\mathrm{Tan}[e+f x]]$$
$$\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$
$$\Big(\big(a^2+b^2\big)^3\,(-b\,c+a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\big(-3\,a^2\,b^4\,c^2+b^6\,c^2+8\,a^3\,b^3\,c\,d-6\,a^4\,b^2\,d^2-3\,a^2\,b^4\,d^2-b^6\,d^2\big)\,\mathrm{Log}\big[(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\big]$$
$$\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$
$$\Big(2\,\big(a^2+b^2\big)^3\,(-b\,c+a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)-$$

$$\Big(d^4\,\mathrm{Log}[c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]]\,\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^3\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$
$$\Big((b\,c-a\,d)^3\,\big(c^2+d^2\big)\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\mathrm{Sec}[e+f x]^4\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\,\big(3\,a\,b^4\,c\,\mathrm{Sin}[e+f x]-4\,a^2\,b^3\,d\,\mathrm{Sin}[e+f x]-b^5\,d\,\mathrm{Sin}[e+f x]\big)\Big)\Big/$$
$$\Big(a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(-b\,c+a\,d)^2\,f\,(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])\Big)$$

- **Problem 1216: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f x])^4}{(c+d\,\mathrm{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 285 leaves, 6 steps) :

$$\frac{\big(8\,a^3\,b\,c\,d-8\,a\,b^3\,c\,d+a^4\,\big(c^2-d^2\big)-6\,a^2\,b^2\,\big(c^2-d^2\big)+b^4\,\big(c^2-d^2\big)\big)\,x}{\big(c^2+d^2\big)^2}-\frac{2\,\big(a^2\,c-b^2\,c+2\,a\,b\,d\big)\,\big(2\,a\,b\,c-a^2\,d+b^2\,d\big)\,\mathrm{Log}[\mathrm{Cos}[e+f x]]}{\big(c^2+d^2\big)^2\,f}-$$
$$\frac{2\,(b\,c-a\,d)^3\,\big(a\,c\,d+b\,\big(c^2+2\,d^2\big)\big)\,\mathrm{Log}[c+d\,\mathrm{Tan}[e+f x]]}{d^3\,\big(c^2+d^2\big)^2\,f}-\frac{b^2\,\big(a\,d\,(2\,b\,c-a\,d)-b^2\,\big(2\,c^2+d^2\big)\big)\,\mathrm{Tan}[e+f x]}{d^2\,\big(c^2+d^2\big)\,f}-\frac{(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f x])^2}{d\,\big(c^2+d^2\big)\,f\,(c+d\,\mathrm{Tan}[e+f x])}$$

Result (type 3, 1789 leaves) :

$$\left(2\left(-\mathrm{i}\,b^4 c^{10} d^2+2\,\mathrm{i}\,a\,b^3 c^9 d^3-b^4 c^9 d^3+2\,a\,b^3 c^8 d^4-3\,\mathrm{i}\,b^4 c^8 d^4-2\,\mathrm{i}\,a^3 b\,c^7 d^5+8\,\mathrm{i}\,a\,b^3 c^7 d^5-3\,b^4 c^7 d^5+\mathrm{i}\,a^4 c^6 d^6-2\,a^3 b\,c^6 d^6-6\,\mathrm{i}\,a^2 b^2 c^6 d^6+8\,a\,b^3 c^6 d^6-2\,\mathrm{i}\,b^4 c^6 d^6+a^4 c^5 d^7-6\,a^2 b^2 c^5 d^7+6\,\mathrm{i}\,a\,b^3 c^5 d^7-2\,b^4 c^5 d^7+\mathrm{i}\,a^4 c^4 d^8-6\,\mathrm{i}\,a^2 b^2 c^4 d^8+6\,a\,b^3 c^4 d^8+a^4 c^3 d^9+2\,\mathrm{i}\,a^3 b\,c^3 d^9-6\,a^2 b^2 c^3 d^9+2\,a^3 b\,c^2 d^{10}\right)(e+f\,x)\,\mathrm{Cos}[e+f\,x]^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,(a+b\,\mathrm{Tan}[e+f\,x])^4\right)\Big/\left(c^2\,(c-\mathrm{i}\,d)^4\,(c+\mathrm{i}\,d)^3\,d^5\,f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)-$$

$$\left(2\,\mathrm{i}\left(-b^4 c^5+2\,a\,b^3 c^4 d-2\,b^4 c^3 d^2-2\,a^3 b\,c^2 d^3+6\,a\,b^3 c^2 d^3+a^4 c\,d^4-6\,a^2 b^2 c\,d^4+2\,a^3 b\,d^5\right)\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]\,\mathrm{Cos}[e+f\,x]^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,(a+b\,\mathrm{Tan}[e+f\,x])^4\right)\Big/\left(d^3\left(c^2+d^2\right)^2 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)-$$

$$\frac{2\left(-b^4 c+2\,a\,b^3 d\right)\mathrm{Cos}[e+f\,x]^2\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,(a+b\,\mathrm{Tan}[e+f\,x])^4}{d^3 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^2}+$$

$$\left(\left(-b^4 c^5+2\,a\,b^3 c^4 d-2\,b^4 c^3 d^2-2\,a^3 b\,c^2 d^3+6\,a\,b^3 c^2 d^3+a^4 c\,d^4-6\,a^2 b^2 c\,d^4+2\,a^3 b\,d^5\right)\mathrm{Cos}[e+f\,x]^2\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right](c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,(a+b\,\mathrm{Tan}[e+f\,x])^4\right)\Big/\left(d^3\left(c^2+d^2\right)^2 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)+$$

$$\left(\mathrm{Cos}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\left(b^4 c^5 d+2\,b^4 c^3 d^3+b^4 c\,d^5+a^4 c^4 d^2\,(e+f\,x)-6\,a^2 b^2 c^4 d^2\,(e+f\,x)+b^4 c^4 d^2\,(e+f\,x)+8\,a^3 b\,c^3 d^3\,(e+f\,x)-8\,a\,b^3 c^3 d^3\,(e+f\,x)-a^4 c^2 d^4\,(e+f\,x)+6\,a^2 b^2 c^2 d^4\,(e+f\,x)-b^4 c^2 d^4\,(e+f\,x)-b^4 c^5 d\,\mathrm{Cos}[2\,(e+f\,x)]-2\,b^4 c^3 d^3\,\mathrm{Cos}[2\,(e+f\,x)]-b^4 c\,d^5\,\mathrm{Cos}[2\,(e+f\,x)]+a^4 c^4 d^2\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]-6\,a^2 b^2 c^4 d^2\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]+b^4 c^4 d^2\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]+8\,a^3 b\,c^3 d^3\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]-8\,a\,b^3 c^3 d^3\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]-a^4 c^2 d^4\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]+6\,a^2 b^2 c^2 d^4\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]-b^4 c^2 d^4\,(e+f\,x)\,\mathrm{Cos}[2\,(e+f\,x)]+2\,b^4 c^6\,\mathrm{Sin}[2\,(e+f\,x)]-4\,a\,b^3 c^5 d\,\mathrm{Sin}[2\,(e+f\,x)]+6\,a^2 b^2 c^4 d^2\,\mathrm{Sin}[2\,(e+f\,x)]+3\,b^4 c^4 d^2\,\mathrm{Sin}[2\,(e+f\,x)]-4\,a^3 b\,c^3 d^3\,\mathrm{Sin}[2\,(e+f\,x)]-4\,a\,b^3 c^3 d^3\,\mathrm{Sin}[2\,(e+f\,x)]+a^4 c^2 d^4\,\mathrm{Sin}[2\,(e+f\,x)]+6\,a^2 b^2 c^2 d^4\,\mathrm{Sin}[2\,(e+f\,x)]+b^4 c^2 d^4\,\mathrm{Sin}[2\,(e+f\,x)]-4\,a^3 b\,c\,d^5\,\mathrm{Sin}[2\,(e+f\,x)]+a^4 d^6\,\mathrm{Sin}[2\,(e+f\,x)]+a^4 c^3 d^3\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]-6\,a^2 b^2 c^3 d^3\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]+b^4 c^3 d^3\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]+8\,a^3 b\,c^2 d^4\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]-8\,a\,b^3 c^2 d^4\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]-a^4 c\,d^5\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]+6\,a^2 b^2 c\,d^5\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]-b^4 c\,d^5\,(e+f\,x)\,\mathrm{Sin}[2\,(e+f\,x)]\right)(a+b\,\mathrm{Tan}[e+f\,x])^4\right)\Big/\left(2\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)$$

- **Problem 1217: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^3}{(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 223 leaves, 5 steps):

$$\frac{\left(6\,a^2 b\,c\,d-2\,b^3 c\,d+a^3\left(c^2-d^2\right)-3\,a\,b^2\left(c^2-d^2\right)\right)x}{\left(c^2+d^2\right)^2}+\frac{\left(2\,a^3 c\,d-6\,a\,b^2 c\,d-3\,a^2 b\left(c^2-d^2\right)+b^3\left(c^2-d^2\right)\right)\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{\left(c^2+d^2\right)^2 f}+\frac{(b\,c-a\,d)^2\left(2\,a\,c\,d+b\left(c^2+3\,d^2\right)\right)\mathrm{Log}[c+d\,\mathrm{Tan}[e+f\,x]]}{d^2\left(c^2+d^2\right)^2 f}-\frac{(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f\,x])}{d\left(c^2+d^2\right)f\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 1027 leaves):

$$\left(\left(a^3 c^2-3 a b^2 c^2+6 a^2 b c d-2 b^3 c d-a^3 d^2+3 a b^2 d^2\right)(e+f x) \operatorname{Cos}[e+f x](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2(a+b \operatorname{Tan}[e+f x])^3\right) / \left((c-i d)^2(c+i d)^2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2\right)+$$
$$\left(\left(i b^3 c^9 d+b^3 c^8 d^2-3 i a^2 b c^7 d^3+4 i b^3 c^7 d^3+2 i a^3 c^6 d^4-3 a^2 b c^6 d^4-6 i a b^2 c^6 d^4+4 b^3 c^6 d^4+2 a^3 c^5 d^5-6 a b^2 c^5 d^5+3 i b^3 c^5 d^5+2 i a^3 c^4 d^6-6 i a b^2 c^4 d^6+3 b^3 c^4 d^6+2 a^3 c^3 d^7+3 i a^2 b c^3 d^7-6 a b^2 c^3 d^7+3 a^2 b c^2 d^8\right)(e+f x) \operatorname{Cos}[e+f x](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2(a+b \operatorname{Tan}[e+f x])^3\right) / \left(c^2(c-i d)^4(c+i d)^3 d^3 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2\right)-$$
$$\left(i\left(b^3 c^4-3 a^2 b c^2 d^2+3 b^3 c^2 d^2+2 a^3 c d^3-6 a b^2 c d^3+3 a^2 b d^4\right) \operatorname{ArcTan}[\operatorname{Tan}[e+f x]] \operatorname{Cos}[e+f x](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2(a+b \operatorname{Tan}[e+f x])^3\right) / \left(d^2\left(c^2+d^2\right)^2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2\right)-$$
$$\frac{b^3 \operatorname{Cos}[e+f x] \operatorname{Log}[\operatorname{Cos}[e+f x]](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2(a+b \operatorname{Tan}[e+f x])^3}{d^2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2}+$$
$$\left(\left(b^3 c^4-3 a^2 b c^2 d^2+3 b^3 c^2 d^2+2 a^3 c d^3-6 a b^2 c d^3+3 a^2 b d^4\right) \operatorname{Cos}[e+f x] \operatorname{Log}\left[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2(a+b \operatorname{Tan}[e+f x])^3\right) / \left(2 d^2\left(c^2+d^2\right)^2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2\right)+$$
$$\left(\operatorname{Cos}[e+f x](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])\left(-b^3 c^3 \operatorname{Sin}[e+f x]+3 a b^2 c^2 d \operatorname{Sin}[e+f x]-3 a^2 b c d^2 \operatorname{Sin}[e+f x]+a^3 d^3 \operatorname{Sin}[e+f x]\right)(a+b \operatorname{Tan}[e+f x])^3\right) / \left(c(c-i d)(c+i d) d f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3(c+d \operatorname{Tan}[e+f x])^2\right)$$

- **Problem 1218: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \operatorname{Tan}[e+f x])^2}{(c+d \operatorname{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 126 leaves, 3 steps):

$$-\frac{(b(c-d)-a(c+d))(a(c-d)+b(c+d)) x}{\left(c^2+d^2\right)^2}-\frac{2(b c-a d)(a c+b d) \operatorname{Log}[c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]]}{\left(c^2+d^2\right)^2 f}-\frac{(b c-a d)^2}{d\left(c^2+d^2\right) f(c+d \operatorname{Tan}[e+f x])}$$

Result (type 3, 320 leaves):

$$\frac{1}{\left(c^2+d^2\right)^2 f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^2}(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])$$
$$\left(\frac{(b c-a d)^2\left(c^2+d^2\right) \operatorname{Sin}[e+f x]}{c}+(b(-c+d)+a(c+d))(a(c-d)+b(c+d))(e+f x)(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])+\right.$$
$$2 i\left(a^2 c d-b^2 c d+a b\left(-c^2+d^2\right)\right)(e+f x)(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])+$$
$$2 i\left(-a^2 c d+b^2 c d+a b\left(c^2-d^2\right)\right) \operatorname{ArcTan}[\operatorname{Tan}[e+f x]](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])+$$
$$\left.\left(a^2 c d-b^2 c d+a b\left(-c^2+d^2\right)\right) \operatorname{Log}\left[(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\right](c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])\right)(a+b \operatorname{Tan}[e+f x])^2$$

- **Problem 1219: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{a+b \operatorname{Tan}[e+f x]}{(c+d \operatorname{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 111 leaves, 3 steps):

$$\frac{\left(2\,b\,c\,d+a\left(c^2-d^2\right)\right)x}{\left(c^2+d^2\right)^2}+\frac{\left(2\,a\,c\,d-b\left(c^2-d^2\right)\right)\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]}{\left(c^2+d^2\right)^2 f}+\frac{b\,c-a\,d}{\left(c^2+d^2\right)f\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 3, 257 leaves) :

$$\frac{1}{2\,c\left(c^2+d^2\right)^2 f\,(c+d\,\text{Tan}[e+f\,x])}\left(c^2\left(2\,(a-i\,b)\,(c+i\,d)^2\,(e+f\,x)+\left(2\,a\,c\,d+b\left(-c^2+d^2\right)\right)\text{Log}\left[(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right]\right)+d\left(2\,(c+i\,d)\left(a\left(-i\,d^2+c\,d\,(1+i\,e+i\,f\,x)+c^2\,(e+f\,x)\right)+b\,c\,(-i\,c\,(-i+e+f\,x)+d\,(i+e+f\,x))\right)+c\left(2\,a\,c\,d+b\left(-c^2+d^2\right)\right)\text{Log}\left[(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right]\right)\text{Tan}[e+f\,x]+2\,i\,c\left(-2\,a\,c\,d+b\left(c^2-d^2\right)\right)\text{ArcTan}[\text{Tan}[e+f\,x]]\,(c+d\,\text{Tan}[e+f\,x])\right)$$

- **Problem 1220: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 184 leaves, 4 steps) :

$$-\frac{\left(2\,b\,c\,d-a\left(c^2-d^2\right)\right)x}{\left(a^2+b^2\right)\left(c^2+d^2\right)^2}+\frac{b^3\,\text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]}{\left(a^2+b^2\right)(b\,c-a\,d)^2 f}+\frac{d^2\left(2\,a\,c\,d-b\left(3\,c^2+d^2\right)\right)\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]}{(b\,c-a\,d)^2\left(c^2+d^2\right)^2 f}+\frac{d^2}{(b\,c-a\,d)\left(c^2+d^2\right)f\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 3, 1329 leaves) :

$$\left(\left(a\,c^2-2\,b\,c\,d-a\,d^2\right)(e+f\,x)\,\text{Sec}[e+f\,x]^3\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)\Big/\left((a-i\,b)\,(a+i\,b)\,(c-i\,d)^2\,(c+i\,d)^2 f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)+$$
$$\Big(\big(3\,i\,a^6\,b^2\,c^8\,d^2+6\,i\,a^4\,b^4\,c^8\,d^2+3\,i\,a^2\,b^6\,c^8\,d^2-5\,i\,a^7\,b\,c^7\,d^3+3\,a^6\,b^2\,c^7\,d^3-10\,i\,a^5\,b^3\,c^7\,d^3+6\,a^4\,b^4\,c^7\,d^3-5\,i\,a^3\,b^5\,c^7\,d^3+3\,a^2\,b^6\,c^7\,d^3+2\,i\,a^8\,c^6\,d^4-5\,a^7\,b\,c^6\,d^4+8\,i\,a^6\,b^2\,c^6\,d^4-10\,a^5\,b^3\,c^6\,d^4+10\,i\,a^4\,b^4\,c^6\,d^4-5\,a^3\,b^5\,c^6\,d^4+4\,i\,a^2\,b^6\,c^6\,d^4+2\,a^8\,c^5\,d^5-6\,i\,a^7\,b\,c^5\,d^5+8\,a^6\,b^2\,c^5\,d^5-12\,i\,a^5\,b^3\,c^5\,d^5+10\,a^4\,b^4\,c^5\,d^5-6\,i\,a^3\,b^5\,c^5\,d^5+4\,a^2\,b^6\,c^5\,d^5+2\,i\,a^8\,c^4\,d^6-6\,a^7\,b\,c^4\,d^6+5\,i\,a^6\,b^2\,c^4\,d^6-12\,a^5\,b^3\,c^4\,d^6+4\,i\,a^4\,b^4\,c^4\,d^6-6\,a^3\,b^5\,c^4\,d^6+i\,a^2\,b^6\,c^4\,d^6+2\,a^8\,c^3\,d^7-i\,a^7\,b\,c^3\,d^7+5\,a^6\,b^2\,c^3\,d^7-2\,i\,a^5\,b^3\,c^3\,d^7+4\,a^4\,b^4\,c^3\,d^7-i\,a^3\,b^5\,c^3\,d^7+a^2\,b^6\,c^3\,d^7-a^7\,b\,c^2\,d^8-2\,a^5\,b^3\,c^2\,d^8-a^3\,b^5\,c^2\,d^8\big)\,(e+f\,x)\,\text{Sec}[e+f\,x]^3\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\Big)\Big/\left(a^2\,(a-i\,b)\,(a+i\,b)\left(a^2+b^2\right)c^2\,(c-i\,d)^4\,(c+i\,d)^3\,(-b\,c+a\,d)^3 f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)-$$
$$\left(i\left(-3\,b\,c^2\,d^2+2\,a\,c\,d^3-b\,d^4\right)\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]^3\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)\Big/\left((b\,c-a\,d)^2\left(c^2+d^2\right)^2 f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)+$$
$$\left(b^3\,\text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]\,\text{Sec}[e+f\,x]^3\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)\Big/\left(\left(a^2+b^2\right)(-b\,c+a\,d)^2 f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)+$$
$$\left(\left(-3\,b\,c^2\,d^2+2\,a\,c\,d^3-b\,d^4\right)\text{Log}\left[(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right]\text{Sec}[e+f\,x]^3\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)\Big/\left(2\,(b\,c-a\,d)^2\left(c^2+d^2\right)^2 f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)-$$
$$\frac{d^3\,\text{Sec}[e+f\,x]^2\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\text{Tan}[e+f\,x]}{c\,(c-i\,d)\,(c+i\,d)\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2}$$

- **Problem 1221: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 290 leaves, 5 steps):

$$\frac{(b\,(c-d)+a\,(c+d))\,(a\,(c-d)-b\,(c+d))\,x}{\left(a^2+b^2\right)^2\left(c^2+d^2\right)^2}+$$
$$\frac{2\,b^3\left(a\,b\,c-2\,a^2\,d-b^2\,d\right)\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]}{\left(a^2+b^2\right)^2(b\,c-a\,d)^3\,f}-\frac{2\,d^3\left(a\,c\,d-b\left(2\,c^2+d^2\right)\right)\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]}{(b\,c-a\,d)^3\left(c^2+d^2\right)^2 f}-$$
$$\frac{d\left(a^2\,d^2+b^2\left(c^2+2\,d^2\right)\right)}{\left(a^2+b^2\right)(b\,c-a\,d)^2\left(c^2+d^2\right)f\,(c+d\,\mathrm{Tan}[e+f\,x])}-\frac{b^2}{\left(a^2+b^2\right)(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 1994 leaves):

$$\Big((a\,c-b\,c-a\,d-b\,d)\,(a\,c+b\,c+a\,d-b\,d)\,(e+f\,x)\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big((a-i\,b)^2\,(a+i\,b)^2\,(c-i\,d)^2\,(c+i\,d)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)-$$
$$\Big(2\,i\,\big(-a^6\,b^5\,c^{11}+i\,a^5\,b^6\,c^{11}-a^4\,b^7\,c^{11}+i\,a^3\,b^8\,c^{11}+3\,a^7\,b^4\,c^{10}\,d-2\,i\,a^6\,b^5\,c^{10}\,d+5\,a^5\,b^6\,c^{10}\,d-3\,i\,a^4\,b^7\,c^{10}\,d+2\,a^3\,b^8\,c^{10}\,d-i\,a^2\,b^9\,c^{10}\,d-$$
$$2\,a^8\,b^3\,c^9\,d^2-i\,a^7\,b^4\,c^9\,d^2-9\,a^6\,b^5\,c^9\,d^2+2\,i\,a^5\,b^6\,c^9\,d^2-8\,a^4\,b^7\,c^9\,d^2+3\,i\,a^3\,b^8\,c^9\,d^2-a^2\,b^9\,c^9\,d^2-2\,a^9\,b^2\,c^8\,d^3+4\,i\,a^8\,b^3\,c^8\,d^3+5\,a^7\,b^4\,c^8\,d^3+$$
$$3\,i\,a^6\,b^5\,c^8\,d^3+12\,a^5\,b^6\,c^8\,d^3-2\,i\,a^4\,b^7\,c^8\,d^3+5\,a^3\,b^8\,c^8\,d^3-i\,a^2\,b^9\,c^8\,d^3+3\,a^{10}\,b\,c^7\,d^4-i\,a^9\,b^2\,c^7\,d^4+5\,a^8\,b^3\,c^7\,d^4-6\,i\,a^7\,b^4\,c^7\,d^4-$$
$$6\,a^6\,b^5\,c^7\,d^4-3\,i\,a^5\,b^6\,c^7\,d^4-9\,a^4\,b^7\,c^7\,d^4+2\,i\,a^3\,b^8\,c^7\,d^4-a^2\,b^9\,c^7\,d^4-a^{11}\,c^6\,d^5-2\,i\,a^{10}\,b\,c^6\,d^5-9\,a^9\,b^2\,c^6\,d^5+3\,i\,a^8\,b^3\,c^6\,d^5-6\,a^7\,b^4\,c^6\,d^5+$$
$$6\,i\,a^6\,b^5\,c^6\,d^5+5\,a^5\,b^6\,c^6\,d^5+i\,a^4\,b^7\,c^6\,d^5+3\,a^3\,b^8\,c^6\,d^5+i\,a^{11}\,c^5\,d^6+5\,a^{10}\,b\,c^5\,d^6+2\,i\,a^9\,b^2\,c^5\,d^6+12\,a^8\,b^3\,c^5\,d^6-3\,i\,a^7\,b^4\,c^5\,d^6+$$
$$5\,a^6\,b^5\,c^5\,d^6-4\,i\,a^5\,b^6\,c^5\,d^6-2\,a^4\,b^7\,c^5\,d^6-a^{11}\,c^4\,d^7-3\,i\,a^{10}\,b\,c^4\,d^7-8\,a^9\,b^2\,c^4\,d^7-2\,i\,a^8\,b^3\,c^4\,d^7-9\,a^7\,b^4\,c^4\,d^7+i\,a^6\,b^5\,c^4\,d^7-2\,a^5\,b^6\,c^4\,d^7+$$
$$i\,a^{11}\,c^3\,d^8+2\,a^{10}\,b\,c^3\,d^8+3\,i\,a^9\,b^2\,c^3\,d^8+5\,a^8\,b^3\,c^3\,d^8+2\,i\,a^7\,b^4\,c^3\,d^8+3\,a^6\,b^5\,c^3\,d^8-i\,a^{10}\,b\,c^2\,d^9-a^9\,b^2\,c^2\,d^9-i\,a^8\,b^3\,c^2\,d^9-a^7\,b^4\,c^2\,d^9\big)$$
$$(e+f\,x)\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big(a^2\,(a-i\,b)^4\,(a+i\,b)^3\,c^2\,(c-i\,d)^4\,(c+i\,d)^3\,(-b\,c+a\,d)^4\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)-$$
$$\Big(2\,i\left(-a\,b^4\,c+2\,a^2\,b^3\,d+b^5\,d\right)\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big(\left(a^2+b^2\right)^2(-b\,c+a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)+$$
$$\Big(2\,i\left(-2\,b\,c^2\,d^3+a\,c\,d^4-b\,d^5\right)\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big((b\,c-a\,d)^3\left(c^2+d^2\right)^2 f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)+$$
$$\Big(\left(-a\,b^4\,c+2\,a^2\,b^3\,d+b^5\,d\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\right]\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big(\left(a^2+b^2\right)^2(-b\,c+a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)-$$
$$\Big(\left(-2\,b\,c^2\,d^3+a\,c\,d^4-b\,d^5\right)\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\Big)\Big/$$
$$\Big((b\,c-a\,d)^3\left(c^2+d^2\right)^2 f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\Big)+$$
$$\frac{d^4\,\mathrm{Sec}[e+f\,x]^3\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,\mathrm{Tan}[e+f\,x]}{c\,(c-i\,d)\,(c+i\,d)\,(b\,c-a\,d)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2}+$$
$$\frac{b^4\,\mathrm{Sec}[e+f\,x]^3\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,\mathrm{Tan}[e+f\,x]}{a\,(a-i\,b)\,(a+i\,b)\,(-b\,c+a\,d)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2}$$

■ Problem 1222: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 457 leaves, 6 steps):

$$-\frac{\left(6\,a^2\,b\,c\,d-2\,b^3\,c\,d-a^3\,\left(c^2-d^2\right)+3\,a\,b^2\,\left(c^2-d^2\right)\right)\,x}{\left(a^2+b^2\right)^3\,\left(c^2+d^2\right)^2}-\frac{1}{\left(a^2+b^2\right)^3\,(b\,c-a\,d)^4\,f}$$

$$b^3\,\left(10\,a^3\,b\,c\,d+2\,a\,b^3\,c\,d-10\,a^4\,d^2+b^4\,\left(c^2-3\,d^2\right)-3\,a^2\,b^2\,\left(c^2+3\,d^2\right)\right)\,\text{Log}[a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x]]-$$

$$\frac{d^4\,\left(5\,b\,c^2-2\,a\,c\,d+3\,b\,d^2\right)\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]}{(b\,c-a\,d)^4\,\left(c^2+d^2\right)^2\,f}+\frac{d\,\left(a^4\,d^3-2\,a\,b^3\,c\,\left(c^2+d^2\right)+2\,a^2\,b^2\,d\,\left(2\,c^2+3\,d^2\right)+b^4\,d\,\left(2\,c^2+3\,d^2\right)\right)}{\left(a^2+b^2\right)^2\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+f\,x])}-$$

$$\frac{b^2}{2\,\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])}-\frac{b^2\,\left(4\,a\,b\,c-7\,a^2\,d-3\,b^2\,d\right)}{2\,\left(a^2+b^2\right)^2\,(b\,c-a\,d)^2\,f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 3, 6824 leaves):

$$\Big(\Big(3\,a^9\,b^7\,c^{13}-3\,i\,a^8\,b^8\,c^{13}+5\,a^7\,b^9\,c^{13}-5\,i\,a^6\,b^{10}\,c^{13}+a^5\,b^{11}\,c^{13}-i\,a^4\,b^{12}\,c^{13}-a^3\,b^{13}\,c^{13}+i\,a^2\,b^{14}\,c^{13}-16\,a^{10}\,b^6\,c^{12}\,d+13\,i\,a^9\,b^7\,c^{12}\,d-35\,a^8\,b^8\,c^{12}\,d+$$

$$27\,i\,a^7\,b^9\,c^{12}\,d-21\,a^6\,b^{10}\,c^{12}\,d+15\,i\,a^5\,b^{11}\,c^{12}\,d-a^4\,b^{12}\,c^{12}\,d+i\,a^3\,b^{13}\,c^{12}\,d+a^2\,b^{14}\,c^{12}\,d+33\,a^{11}\,b^5\,c^{11}\,d^2-17\,i\,a^{10}\,b^6\,c^{11}\,d^2+103\,a^9\,b^7\,c^{11}\,d^2-$$

$$55\,i\,a^8\,b^8\,c^{11}\,d^2+107\,a^7\,b^9\,c^{11}\,d^2-59\,i\,a^6\,b^{10}\,c^{11}\,d^2+37\,a^5\,b^{11}\,c^{11}\,d^2-21\,i\,a^4\,b^{12}\,c^{11}\,d^2-30\,a^{12}\,b^4\,c^{10}\,d^3-3\,i\,a^{11}\,b^5\,c^{10}\,d^3-161\,a^{10}\,b^6\,c^{10}\,d^3+$$

$$41\,i\,a^9\,b^7\,c^{10}\,d^3-259\,a^8\,b^8\,c^{10}\,d^3+97\,i\,a^7\,b^9\,c^{10}\,d^3-155\,a^6\,b^{10}\,c^{10}\,d^3+59\,i\,a^5\,b^{11}\,c^{10}\,d^3-27\,a^4\,b^{12}\,c^{10}\,d^3+6\,i\,a^3\,b^{13}\,c^{10}\,d^3+5\,a^{13}\,b^3\,c^9\,d^4+$$

$$25\,i\,a^{12}\,b^4\,c^9\,d^4+133\,a^{11}\,b^5\,c^9\,d^4+25\,i\,a^{10}\,b^6\,c^9\,d^4+352\,a^9\,b^7\,c^9\,d^4-52\,i\,a^8\,b^8\,c^9\,d^4+332\,a^7\,b^9\,c^9\,d^4-80\,i\,a^6\,b^{10}\,c^9\,d^4+115\,a^5\,b^{11}\,c^9\,d^4-$$

$$29\,i\,a^4\,b^{12}\,c^9\,d^4+7\,a^3\,b^{13}\,c^9\,d^4-i\,a^2\,b^{14}\,c^9\,d^4+12\,a^{14}\,b^2\,c^8\,d^5-17\,i\,a^{13}\,b^3\,c^8\,d^5-35\,a^{12}\,b^4\,c^8\,d^5-73\,i\,a^{11}\,b^5\,c^8\,d^5-271\,a^{10}\,b^6\,c^8\,d^5-$$

$$56\,i\,a^9\,b^7\,c^8\,d^5-428\,a^8\,b^8\,c^8\,d^5+44\,i\,a^7\,b^9\,c^8\,d^5-244\,a^6\,b^{10}\,c^8\,d^5+49\,i\,a^5\,b^{11}\,c^8\,d^5-41\,a^4\,b^{12}\,c^8\,d^5+5\,i\,a^3\,b^{13}\,c^8\,d^5-a^2\,b^{14}\,c^8\,d^5-$$

$$9\,a^{15}\,b\,c^7\,d^6-3\,i\,a^{14}\,b^2\,c^7\,d^6-35\,a^{13}\,b^3\,c^7\,d^6+53\,i\,a^{12}\,b^4\,c^7\,d^6+86\,a^{11}\,b^5\,c^7\,d^6+112\,i\,a^{10}\,b^6\,c^7\,d^6+328\,a^9\,b^7\,c^7\,d^6+44\,i\,a^8\,b^8\,c^7\,d^6+$$

$$309\,a^7\,b^9\,c^7\,d^6-21\,i\,a^6\,b^{10}\,c^7\,d^6+99\,a^5\,b^{11}\,c^7\,d^6-9\,i\,a^4\,b^{12}\,c^7\,d^6+6\,a^3\,b^{13}\,c^7\,d^6+2\,a^{16}\,c^6\,d^7+7\,i\,a^{15}\,b\,c^6\,d^7+37\,a^{14}\,b^2\,c^6\,d^7-5\,i\,a^{13}\,b^3\,c^6\,d^7+$$

$$43\,a^{12}\,b^4\,c^6\,d^7-76\,i\,a^{11}\,b^5\,c^6\,d^7-112\,a^{10}\,b^6\,c^6\,d^7-104\,i\,a^9\,b^7\,c^6\,d^7-230\,a^8\,b^8\,c^6\,d^7-35\,i\,a^7\,b^9\,c^6\,d^7-125\,a^6\,b^{10}\,c^6\,d^7+5\,i\,a^5\,b^{11}\,c^6\,d^7-$$

$$15\,a^4\,b^{12}\,c^6\,d^7-2\,i\,a^{16}\,c^5\,d^8-14\,a^{15}\,b\,c^5\,d^8-16\,i\,a^{14}\,b^2\,c^5\,d^8-61\,a^{13}\,b^3\,c^5\,d^8+13\,i\,a^{12}\,b^4\,c^5\,d^8-35\,a^{11}\,b^5\,c^5\,d^8+71\,i\,a^{10}\,b^6\,c^5\,d^8+$$

$$77\,a^9\,b^7\,c^5\,d^8+49\,i\,a^8\,b^8\,c^5\,d^8+85\,a^7\,b^9\,c^5\,d^8+5\,i\,a^6\,b^{10}\,c^5\,d^8+20\,a^5\,b^{11}\,c^5\,d^8+2\,a^{16}\,c^4\,d^9+10\,i\,a^{15}\,b\,c^4\,d^9+28\,a^{14}\,b^2\,c^4\,d^9+17\,i\,a^{13}\,b^3\,c^4\,d^9+$$

$$53\,a^{12}\,b^4\,c^4\,d^9-5\,i\,a^{11}\,b^5\,c^4\,d^9+15\,a^{10}\,b^6\,c^4\,d^9-21\,i\,a^9\,b^7\,c^4\,d^9-27\,a^8\,b^8\,c^4\,d^9-9\,i\,a^7\,b^9\,c^4\,d^9-15\,a^6\,b^{10}\,c^4\,d^9-2\,i\,a^{16}\,c^3\,d^{10}-$$

$$5\,a^{15}\,b\,c^3\,d^{10}-13\,i\,a^{14}\,b^2\,c^3\,d^{10}-21\,a^{13}\,b^3\,c^3\,d^{10}-15\,i\,a^{12}\,b^4\,c^3\,d^{10}-21\,a^{11}\,b^5\,c^3\,d^{10}+i\,a^{10}\,b^6\,c^3\,d^{10}+a^9\,b^7\,c^3\,d^{10}+5\,i\,a^8\,b^8\,c^3\,d^{10}+$$

$$6\,a^7\,b^9\,c^3\,d^{10}+3\,i\,a^{15}\,b\,c^2\,d^{11}+3\,a^{14}\,b^2\,c^2\,d^{11}+5\,i\,a^{13}\,b^3\,c^2\,d^{11}+5\,a^{12}\,b^4\,c^2\,d^{11}+i\,a^{11}\,b^5\,c^2\,d^{11}+a^{10}\,b^6\,c^2\,d^{11}-i\,a^9\,b^7\,c^2\,d^{11}-a^8\,b^8\,c^2\,d^{11}\Big)$$

$$(e+f\,x)\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\Big)\Big/$$

$$\left(a^2\,(i\,a-b)^3\,(a-i\,b)^6\,(a+i\,b)^2\,c^2\,(c-i\,d)^4\,(c+i\,d)^3\,(-b\,c+a\,d)^6\,f\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\right)-$$

$$\Big(i\,\left(3\,a^2\,b^5\,c^2-b^7\,c^2-10\,a^3\,b^4\,c\,d-2\,a\,b^6\,c\,d+10\,a^4\,b^3\,d^2+9\,a^2\,b^5\,d^2+3\,b^7\,d^2\right)\,\text{ArcTan}[\text{Tan}[e+f\,x]]$$

$$\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\Big)\Big/$$

$$\left(\left(a^2+b^2\right)^3\,(-b\,c+a\,d)^4\,f\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\right)-$$

$$\left(i\,\left(-5\,b\,c^2\,d^4+2\,a\,c\,d^5-3\,b\,d^6\right)\,\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)\Big/$$

$$\left((b\,c-a\,d)^4\,\left(c^2+d^2\right)^2\,f\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\right)+$$

$$\Big(\left(3\,a^2\,b^5\,c^2-b^7\,c^2-10\,a^3\,b^4\,c\,d-2\,a\,b^6\,c\,d+10\,a^4\,b^3\,d^2+9\,a^2\,b^5\,d^2+3\,b^7\,d^2\right)\,\text{Log}\left[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right]$$

$$\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\Big)\Big/$$

$\left(2 \left(a^2+b^2\right)^3 (-b c+a d)^4 f (a+b Tan[e+f x])^3 (c+d Tan[e+f x])^2\right)+$

$\left(\left(-5 b c^2 d^4+2 a c d^5-3 b d^6\right) Log\left[(c Cos[e+f x]+d Sin[e+f x])^2\right] Sec[e+f x]^5\right.$

$\left.(a Cos[e+f x]+b Sin[e+f x])^3 (c Cos[e+f x]+d Sin[e+f x])^2\right) /$

$\left(2 (b c-a d)^4 \left(c^2+d^2\right)^2 f (a+b Tan[e+f x])^3 (c+d Tan[e+f x])^2\right)+$

$\left(Sec[e+f x]^5 (a Cos[e+f x]+b Sin[e+f x]) (c Cos[e+f x]+d Sin[e+f x])\right.$

$\left(-a^3 b^6 c^7 Cos[e+f x]-a b^8 c^7 Cos[e+f x]+2 a^2 b^7 c^6 d Cos[e+f x]+2 b^9 c^6 d Cos[e+f x]+5 a^5 b^4 c^5 d^2 Cos[e+f x]+\right.$

$5 a^3 b^6 c^5 d^2 Cos[e+f x]+4 a^2 b^7 c^4 d^3 Cos[e+f x]+4 b^9 c^4 d^3 Cos[e+f x]+10 a^5 b^4 c^3 d^4 Cos[e+f x]+13 a^3 b^6 c^3 d^4 Cos[e+f x]+$

$3 a b^8 c^3 d^4 Cos[e+f x]+2 a^8 b c^2 d^5 Cos[e+f x]+6 a^6 b^3 c^2 d^5 Cos[e+f x]+6 a^4 b^5 c^2 d^5 Cos[e+f x]+4 a^2 b^7 c^2 d^5 Cos[e+f x]+$

$2 b^9 c^2 d^5 Cos[e+f x]+5 a^5 b^4 c d^6 Cos[e+f x]+7 a^3 b^6 c d^6 Cos[e+f x]+2 a b^8 c d^6 Cos[e+f x]+2 a^8 b d^7 Cos[e+f x]+$

$6 a^6 b^3 d^7 Cos[e+f x]+6 a^4 b^5 d^7 Cos[e+f x]+2 a^2 b^7 d^7 Cos[e+f x]-3 a^6 b^3 c^7 (e+f x) Cos[e+f x]+8 a^4 b^5 c^7 (e+f x) Cos[e+f x]+$

$3 a^2 b^7 c^7 (e+f x) Cos[e+f x]+9 a^7 b^2 c^6 d (e+f x) Cos[e+f x]-8 a^5 b^4 c^6 d (e+f x) Cos[e+f x]-3 a^3 b^6 c^6 d (e+f x) Cos[e+f x]-$

$2 a b^8 c^6 d (e+f x) Cos[e+f x]-9 a^8 b c^5 d^2 (e+f x) Cos[e+f x]-21 a^6 b^3 c^5 d^2 (e+f x) Cos[e+f x]-5 a^4 b^5 c^5 d^2 (e+f x) Cos[e+f x]-$

$a^2 b^7 c^5 d^2 (e+f x) Cos[e+f x]+3 a^9 c^4 d^3 (e+f x) Cos[e+f x]+31 a^7 b^2 c^4 d^3 (e+f x) Cos[e+f x]+5 a^5 b^4 c^4 d^3 (e+f x) Cos[e+f x]+$

$9 a^3 b^6 c^4 d^3 (e+f x) Cos[e+f x]-7 a^8 b c^3 d^4 (e+f x) Cos[e+f x]-a^4 b^5 c^3 d^4 (e+f x) Cos[e+f x]-3 a^9 c^2 d^5 (e+f x) Cos[e+f x]+$

$2 a^7 b^2 c^2 d^5 (e+f x) Cos[e+f x]-11 a^5 b^4 c^2 d^5 (e+f x) Cos[e+f x]-2 a^8 b c d^6 (e+f x) Cos[e+f x]+6 a^6 b^3 c d^6 (e+f x) Cos[e+f x]+$

$3 a^3 b^6 c^7 Cos[3 (e+f x)]+3 a b^8 c^7 Cos[3 (e+f x)]-2 a^4 b^5 c^6 d Cos[3 (e+f x)]-4 a^2 b^7 c^6 d Cos[3 (e+f x)]-$

$2 b^9 c^6 d Cos[3 (e+f x)]-5 a^5 b^4 c^5 d^2 Cos[3 (e+f x)]-a^3 b^6 c^5 d^2 Cos[3 (e+f x)]+4 a b^8 c^5 d^2 Cos[3 (e+f x)]-$

$4 a^4 b^5 c^4 d^3 Cos[3 (e+f x)]-8 a^2 b^7 c^4 d^3 Cos[3 (e+f x)]-4 b^9 c^4 d^3 Cos[3 (e+f x)]-10 a^5 b^4 c^3 d^4 Cos[3 (e+f x)]-$

$11 a^3 b^6 c^3 d^4 Cos[3 (e+f x)]-a b^8 c^3 d^4 Cos[3 (e+f x)]-2 a^8 b c^2 d^5 Cos[3 (e+f x)]-6 a^6 b^3 c^2 d^5 Cos[3 (e+f x)]-$

$8 a^4 b^5 c^2 d^5 Cos[3 (e+f x)]-6 a^2 b^7 c^2 d^5 Cos[3 (e+f x)]-2 b^9 c^2 d^5 Cos[3 (e+f x)]-5 a^5 b^4 c d^6 Cos[3 (e+f x)]-$

$7 a^3 b^6 c d^6 Cos[3 (e+f x)]-2 a b^8 c d^6 Cos[3 (e+f x)]-2 a^8 b d^7 Cos[3 (e+f x)]-6 a^6 b^3 d^7 Cos[3 (e+f x)]-$

$6 a^4 b^5 d^7 Cos[3 (e+f x)]-2 a^2 b^7 d^7 Cos[3 (e+f x)]-a^6 b^3 c^7 (e+f x) Cos[3 (e+f x)]+4 a^4 b^5 c^7 (e+f x) Cos[3 (e+f x)]-$

$3 a^2 b^7 c^7 (e+f x) Cos[3 (e+f x)]+3 a^7 b^2 c^6 d (e+f x) Cos[3 (e+f x)]-4 a^5 b^4 c^6 d (e+f x) Cos[3 (e+f x)]-$

$5 a^3 b^6 c^6 d (e+f x) Cos[3 (e+f x)]+2 a b^8 c^6 d (e+f x) Cos[3 (e+f x)]-3 a^8 b c^5 d^2 (e+f x) Cos[3 (e+f x)]-$

$11 a^6 b^3 c^5 d^2 (e+f x) Cos[3 (e+f x)]+17 a^4 b^5 c^5 d^2 (e+f x) Cos[3 (e+f x)]+a^2 b^7 c^5 d^2 (e+f x) Cos[3 (e+f x)]+$

$a^9 c^4 d^3 (e+f x) Cos[3 (e+f x)]+17 a^7 b^2 c^4 d^3 (e+f x) Cos[3 (e+f x)]+7 a^5 b^4 c^4 d^3 (e+f x) Cos[3 (e+f x)]-$

$9 a^3 b^6 c^4 d^3 (e+f x) Cos[3 (e+f x)]-5 a^8 b c^3 d^4 (e+f x) Cos[3 (e+f x)]-28 a^6 b^3 c^3 d^4 (e+f x) Cos[3 (e+f x)]+$

$a^4 b^5 c^3 d^4 (e+f x) Cos[3 (e+f x)]-a^9 c^2 d^5 (e+f x) Cos[3 (e+f x)]+10 a^7 b^2 c^2 d^5 (e+f x) Cos[3 (e+f x)]+$

$11 a^5 b^4 c^2 d^5 (e+f x) Cos[3 (e+f x)]+2 a^8 b c d^6 (e+f x) Cos[3 (e+f x)]-6 a^6 b^3 c d^6 (e+f x) Cos[3 (e+f x)]-3 a^4 b^5 c^7 Sin[e+f x]-$

$3 a^2 b^7 c^7 Sin[e+f x]+5 a^5 b^4 c^6 d Sin[e+f x]-5 a b^8 c^6 d Sin[e+f x]+7 a^4 b^5 c^5 d^2 Sin[e+f x]+13 a^2 b^7 c^5 d^2 Sin[e+f x]+$

$6 b^9 c^5 d^2 Sin[e+f x]+10 a^5 b^4 c^4 d^3 Sin[e+f x]-10 a b^8 c^4 d^3 Sin[e+f x]+23 a^4 b^5 c^3 d^4 Sin[e+f x]+35 a^2 b^7 c^3 d^4 Sin[e+f x]+$

$12 b^9 c^3 d^4 Sin[e+f x]+a^9 c^2 d^5 Sin[e+f x]+6 a^7 b^2 c^2 d^5 Sin[e+f x]+17 a^5 b^4 c^2 d^5 Sin[e+f x]+10 a^3 b^6 c^2 d^5 Sin[e+f x]-$

$2 a b^8 c^2 d^5 Sin[e+f x]+13 a^4 b^5 c d^6 Sin[e+f x]+19 a^2 b^7 c d^6 Sin[e+f x]+6 b^9 c d^6 Sin[e+f x]+a^9 d^7 Sin[e+f x]+$

$6 a^7 b^2 d^7 Sin[e+f x]+12 a^5 b^4 d^7 Sin[e+f x]+10 a^3 b^6 d^7 Sin[e+f x]+3 a b^8 d^7 Sin[e+f x]-2 a^5 b^4 c^7 (e+f x) Sin[e+f x]+$

$6 a^3 b^6 c^7 (e+f x) Sin[e+f x]+5 a^6 b^3 c^6 d (e+f x) Sin[e+f x]-6 a^4 b^5 c^6 d (e+f x) Sin[e+f x]+5 a^2 b^7 c^6 d (e+f x) Sin[e+f x]-$

$3 a^7 b^2 c^5 d^2 (e+f x) Sin[e+f x]-10 a^5 b^4 c^5 d^2 (e+f x) Sin[e+f x]-5 a^3 b^6 c^5 d^2 (e+f x) Sin[e+f x]-6 a b^8 c^5 d^2 (e+f x) Sin[e+f x]-$

$a^8 b c^4 d^3 (e+f x) Sin[e+f x]+7 a^6 b^3 c^4 d^3 (e+f x) Sin[e+f x]-15 a^4 b^5 c^4 d^3 (e+f x) Sin[e+f x]+9 a^2 b^7 c^4 d^3 (e+f x) Sin[e+f x]+$

$a^9 c^3 d^4 (e+f x) Sin[e+f x]+9 a^7 b^2 c^3 d^4 (e+f x) Sin[e+f x]+25 a^5 b^4 c^3 d^4 (e+f x) Sin[e+f x]+9 a^3 b^6 c^3 d^4 (e+f x) Sin[e+f x]-$

$5 a^8 b c^2 d^5 (e+f x) Sin[e+f x]-10 a^6 b^3 c^2 d^5 (e+f x) Sin[e+f x]-21 a^4 b^5 c^2 d^5 (e+f x) Sin[e+f x]-a^9 c d^6 (e+f x) Sin[e+f x]+$

$9 a^5 b^4 c d^6 (e+f x) Sin[e+f x]-3 a^4 b^5 c^7 Sin[3 (e+f x)]-3 a^2 b^7 c^7 Sin[3 (e+f x)]+5 a^5 b^4 c^6 d Sin[3 (e+f x)]+$

$10 a^3 b^6 c^6 d Sin[3 (e+f x)]+5 a b^8 c^6 d Sin[3 (e+f x)]-11 a^4 b^5 c^5 d^2 Sin[3 (e+f x)]-13 a^2 b^7 c^5 d^2 Sin[3 (e+f x)]-$

$2 b^9 c^5 d^2 Sin[3 (e+f x)]+10 a^5 b^4 c^4 d^3 Sin[3 (e+f x)]+20 a^3 b^6 c^4 d^3 Sin[3 (e+f x)]+10 a b^8 c^4 d^3 Sin[3 (e+f x)]-$

$13 a^4 b^5 c^3 d^4 Sin[3 (e+f x)]-17 a^2 b^7 c^3 d^4 Sin[3 (e+f x)]-4 b^9 c^3 d^4 Sin[3 (e+f x)]+a^9 c^2 d^5 Sin[3 (e+f x)]+$

$2 a^7 b^2 c^2 d^5 \operatorname{Sin}[3 (e+f x)] + 5 a^5 b^4 c^2 d^5 \operatorname{Sin}[3 (e+f x)] + 8 a^3 b^6 c^2 d^5 \operatorname{Sin}[3 (e+f x)] + 4 a b^8 c^2 d^5 \operatorname{Sin}[3 (e+f x)] -$
$5 a^4 b^5 c d^6 \operatorname{Sin}[3 (e+f x)] - 7 a^2 b^7 c d^6 \operatorname{Sin}[3 (e+f x)] - 2 b^9 c d^6 \operatorname{Sin}[3 (e+f x)] + a^9 d^7 \operatorname{Sin}[3 (e+f x)] + 2 a^7 b^2 d^7 \operatorname{Sin}[3 (e+f x)] -$
$2 a^3 b^6 d^7 \operatorname{Sin}[3 (e+f x)] - a b^8 d^7 \operatorname{Sin}[3 (e+f x)] - 2 a^5 b^4 c^7 (e+f x) \operatorname{Sin}[3 (e+f x)] + 6 a^3 b^6 c^7 (e+f x) \operatorname{Sin}[3 (e+f x)] +$
$5 a^6 b^3 c^6 d (e+f x) \operatorname{Sin}[3 (e+f x)] - 2 a^4 b^5 c^6 d (e+f x) \operatorname{Sin}[3 (e+f x)] - 7 a^2 b^7 c^6 d (e+f x) \operatorname{Sin}[3 (e+f x)] -$
$3 a^7 b^2 c^5 d^2 (e+f x) \operatorname{Sin}[3 (e+f x)] - 22 a^5 b^4 c^5 d^2 (e+f x) \operatorname{Sin}[3 (e+f x)] + 7 a^3 b^6 c^5 d^2 (e+f x) \operatorname{Sin}[3 (e+f x)] +$
$2 a b^8 c^5 d^2 (e+f x) \operatorname{Sin}[3 (e+f x)] - a^8 b c^4 d^3 (e+f x) \operatorname{Sin}[3 (e+f x)] + 19 a^6 b^3 c^4 d^3 (e+f x) \operatorname{Sin}[3 (e+f x)] +$
$17 a^4 b^5 c^4 d^3 (e+f x) \operatorname{Sin}[3 (e+f x)] - 3 a^2 b^7 c^4 d^3 (e+f x) \operatorname{Sin}[3 (e+f x)] + a^9 c^3 d^4 (e+f x) \operatorname{Sin}[3 (e+f x)] +$
$5 a^7 b^2 c^3 d^4 (e+f x) \operatorname{Sin}[3 (e+f x)] - 23 a^5 b^4 c^3 d^4 (e+f x) \operatorname{Sin}[3 (e+f x)] - 3 a^3 b^6 c^3 d^4 (e+f x) \operatorname{Sin}[3 (e+f x)] -$
$5 a^8 b c^2 d^5 (e+f x) \operatorname{Sin}[3 (e+f x)] + 2 a^6 b^3 c^2 d^5 (e+f x) \operatorname{Sin}[3 (e+f x)] + 7 a^4 b^5 c^2 d^5 (e+f x) \operatorname{Sin}[3 (e+f x)] -$
$a^9 c d^6 (e+f x) \operatorname{Sin}[3 (e+f x)] + 4 a^7 b^2 c d^6 (e+f x) \operatorname{Sin}[3 (e+f x)] - 3 a^5 b^4 c d^6 (e+f x) \operatorname{Sin}[3 (e+f x)])) \Big/$
$\left(4 a (a - i b)^3 (a + i b)^3 c (c - i d)^2 (c + i d)^2 (-b c + a d)^3 f (a + b \operatorname{Tan}[e+f x])^3 (c + d \operatorname{Tan}[e+f x])^2\right)$

- **Problem 1223: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a + b \operatorname{Tan}[e+f x])^4}{(c + d \operatorname{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 406 leaves, 6 steps):

$$-\frac{\left(6 a^2 b^2 c \left(c^2 - 3 d^2\right) - b^4 c \left(c^2 - 3 d^2\right) - 4 a^3 b d \left(3 c^2 - d^2\right) + 4 a b^3 d \left(3 c^2 - d^2\right) - a^4 \left(c^3 - 3 c d^2\right)\right) x}{\left(c^2 + d^2\right)^3} - \frac{1}{\left(c^2 + d^2\right)^3 f}$$
$$\left(4 a^3 b c \left(c^2 - 3 d^2\right) - 4 a b^3 c \left(c^2 - 3 d^2\right) + 6 a^2 b^2 d \left(3 c^2 - d^2\right) - b^4 d \left(3 c^2 - d^2\right) - a^4 \left(3 c^2 d - d^3\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]] +$$
$$\frac{(b c - a d)^2 \left(a^2 d^2 \left(3 c^2 - d^2\right) + 2 a b c d \left(c^2 + 5 d^2\right) + b^2 \left(c^4 + 3 c^2 d^2 + 6 d^4\right)\right) \operatorname{Log}[c + d \operatorname{Tan}[e+f x]]}{d^3 \left(c^2 + d^2\right)^3 f} -$$
$$\frac{(b c - a d)^2 (a + b \operatorname{Tan}[e+f x])^2}{2 d \left(c^2 + d^2\right) f (c + d \operatorname{Tan}[e+f x])^2} + \frac{(b c - a d)^3 \left(2 a c d + b \left(c^2 + 3 d^2\right)\right)}{d^3 \left(c^2 + d^2\right)^2 f (c + d \operatorname{Tan}[e+f x])}$$

Result (type 3, 2775 leaves):

$$
\begin{aligned}
&\Big(\big(\mathbb{i}\, b^4 c^{13} d^2 + b^4 c^{12} d^3 + 5\,\mathbb{i}\, b^4 c^{11} d^4 - 4\,\mathbb{i}\, a^3 b c^{10} d^5 + 4\,\mathbb{i}\, a b^3 c^{10} d^5 + 5 b^4 c^{10} d^5 + 3\,\mathbb{i}\, a^4 c^9 d^6 - 4 a^3 b c^9 d^6 - 18\,\mathbb{i}\, a^2 b^2 c^9 d^6 + \\
&\quad 4 a b^3 c^9 d^6 + 13\,\mathbb{i}\, b^4 c^9 d^6 + 3 a^4 c^8 d^7 + 4\,\mathbb{i}\, a^3 b c^8 d^7 - 18 a^2 b^2 c^8 d^7 - 4\,\mathbb{i}\, a b^3 c^8 d^7 + 13 b^4 c^8 d^7 + 5\,\mathbb{i}\, a^4 c^7 d^8 + 4 a^3 b c^7 d^8 - \\
&\quad 30\,\mathbb{i}\, a^2 b^2 c^7 d^8 - 4 a b^3 c^7 d^8 + 15\,\mathbb{i}\, b^4 c^7 d^8 + 5 a^4 c^6 d^9 + 20\,\mathbb{i}\, a^3 b c^6 d^9 - 30 a^2 b^2 c^6 d^9 - 20\,\mathbb{i}\, a b^3 c^6 d^9 + 15 b^4 c^6 d^9 + \\
&\quad \mathbb{i}\, a^4 c^5 d^{10} + 20 a^3 b c^5 d^{10} - 6\,\mathbb{i}\, a^2 b^2 c^5 d^{10} - 20 a b^3 c^5 d^{10} + 6\,\mathbb{i}\, b^4 c^5 d^{10} + a^4 c^4 d^{11} + 12\,\mathbb{i}\, a^3 b c^4 d^{11} - 6 a^2 b^2 c^4 d^{11} - \\
&\quad 12\,\mathbb{i}\, a b^3 c^4 d^{11} + 6 b^4 c^4 d^{11} - \mathbb{i}\, a^4 c^3 d^{12} + 12 a^3 b c^3 d^{12} + 6\,\mathbb{i}\, a^2 b^2 c^3 d^{12} - 12 a b^3 c^3 d^{12} - a^4 c^2 d^{13} + 6 a^2 b^2 c^2 d^{13}\big) \\
&\quad (e+f x)\, \text{Cos}[e+f x]\, (c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])^3\, (a + b\, \text{Tan}[e+f x])^4\Big) \Big/ \\
&\Big(c^2 (c - \mathbb{i}\, d)^6 (c + \mathbb{i}\, d)^5 d^5 f\, (a\, \text{Cos}[e+f x] + b\, \text{Sin}[e+f x])^4 (c + d\, \text{Tan}[e+f x])^3\Big) - \\
&\Big(\mathbb{i}\, \big(b^4 c^6 + 3 b^4 c^4 d^2 - 4 a^3 b c^3 d^3 + 4 a b^3 c^3 d^3 + 3 a^4 c^2 d^4 - 18 a^2 b^2 c^2 d^4 + 6 b^4 c^2 d^4 + 12 a^3 b c d^5 - 12 a b^3 c d^5 - a^4 d^6 + 6 a^2 b^2 d^6\big) \\
&\quad \text{ArcTan}[\text{Tan}[e+f x]]\, \text{Cos}[e+f x]\, (c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])^3 (a + b\, \text{Tan}[e+f x])^4\Big) \Big/ \\
&\Big(d^3 \big(c^2 + d^2\big)^3 f\, (a\, \text{Cos}[e+f x] + b\, \text{Sin}[e+f x])^4 (c + d\, \text{Tan}[e+f x])^3\Big) - \\
&\frac{b^4\, \text{Cos}[e+f x]\, \text{Log}[\text{Cos}[e+f x]]\, (c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])^3 (a + b\, \text{Tan}[e+f x])^4}{d^3 f\, (a\, \text{Cos}[e+f x] + b\, \text{Sin}[e+f x])^4 (c + d\, \text{Tan}[e+f x])^3} + \\
&\Big(\big(b^4 c^6 + 3 b^4 c^4 d^2 - 4 a^3 b c^3 d^3 + 4 a b^3 c^3 d^3 + 3 a^4 c^2 d^4 - 18 a^2 b^2 c^2 d^4 + 6 b^4 c^2 d^4 + 12 a^3 b c d^5 - 12 a b^3 c d^5 - a^4 d^6 + 6 a^2 b^2 d^6\big) \\
&\quad \text{Cos}[e+f x]\, \text{Log}\big[(c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])^2\big]\, (c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])^3 (a + b\, \text{Tan}[e+f x])^4\Big) \Big/ \\
&\Big(2 d^3 \big(c^2 + d^2\big)^3 f\, (a\, \text{Cos}[e+f x] + b\, \text{Sin}[e+f x])^4 (c + d\, \text{Tan}[e+f x])^3\Big) + \\
&\Big(\text{Cos}[e+f x]\, (c\, \text{Cos}[e+f x] + d\, \text{Sin}[e+f x])\, \big(-2 b^4 c^7 d + 4 a b^3 c^6 d^2 - 6 b^4 c^5 d^3 - 4 a^3 b c^4 d^4 + 16 a b^3 c^4 d^4 + 2 a^4 c^3 d^5 - 12 a^2 b^2 c^3 d^5 - 4 b^4 c^3 d^5 + \\
&\quad 12 a b^3 c^2 d^6 + 2 a^4 c d^7 - 12 a^2 b^2 c d^7 + 4 a^3 b d^8 + a^4 c^6 d^2 (e+f x) - 6 a^2 b^2 c^6 d^2 (e+f x) + b^4 c^6 d^2 (e+f x) + 12 a^3 b c^5 d^3 (e+f x) - \\
&\quad 12 a b^3 c^5 d^3 (e+f x) - 2 a^4 c^4 d^4 (e+f x) + 12 a^2 b^2 c^4 d^4 (e+f x) - 2 b^4 c^4 d^4 (e+f x) + 8 a^3 b c^3 d^5 (e+f x) - 8 a b^3 c^3 d^5 (e+f x) - \\
&\quad 3 a^4 c^2 d^6 (e+f x) + 18 a^2 b^2 c^2 d^6 (e+f x) - 3 b^4 c^2 d^6 (e+f x) - 4 a^3 b c d^7 (e+f x) + 4 a b^3 c d^7 (e+f x) + b^4 c^7 d\, \text{Cos}[2 (e+f x)] - \\
&\quad 6 a^2 b^2 c^5 d^3\, \text{Cos}[2 (e+f x)] + 5 b^4 c^5 d^3\, \text{Cos}[2 (e+f x)] + 8 a^3 b c^4 d^4\, \text{Cos}[2 (e+f x)] - 12 a b^3 c^4 d^4\, \text{Cos}[2 (e+f x)] - \\
&\quad 3 a^4 c^3 d^5\, \text{Cos}[2 (e+f x)] + 6 a^2 b^2 c^3 d^5\, \text{Cos}[2 (e+f x)] + 4 b^4 c^3 d^5\, \text{Cos}[2 (e+f x)] + 4 a^3 b c^2 d^6\, \text{Cos}[2 (e+f x)] - \\
&\quad 12 a b^3 c^2 d^6\, \text{Cos}[2 (e+f x)] - 3 a^4 c d^7\, \text{Cos}[2 (e+f x)] + 12 a^2 b^2 c d^7\, \text{Cos}[2 (e+f x)] - 4 a^3 b d^8\, \text{Cos}[2 (e+f x)] + a^4 c^6 d^2 (e+f x) \\
&\quad\ \text{Cos}[2 (e+f x)] - 6 a^2 b^2 c^6 d^2 (e+f x)\, \text{Cos}[2 (e+f x)] + b^4 c^6 d^2 (e+f x)\, \text{Cos}[2 (e+f x)] + 12 a^3 b c^5 d^3 (e+f x)\, \text{Cos}[2 (e+f x)] - \\
&\quad 12 a b^3 c^5 d^3 (e+f x)\, \text{Cos}[2 (e+f x)] - 4 a^4 c^4 d^4 (e+f x)\, \text{Cos}[2 (e+f x)] + 24 a^2 b^2 c^4 d^4 (e+f x)\, \text{Cos}[2 (e+f x)] - \\
&\quad 4 b^4 c^4 d^4 (e+f x)\, \text{Cos}[2 (e+f x)] - 16 a^3 b c^3 d^5 (e+f x)\, \text{Cos}[2 (e+f x)] + 16 a b^3 c^3 d^5 (e+f x)\, \text{Cos}[2 (e+f x)] + \\
&\quad 3 a^4 c^2 d^6 (e+f x)\, \text{Cos}[2 (e+f x)] - 18 a^2 b^2 c^2 d^6 (e+f x)\, \text{Cos}[2 (e+f x)] + 3 b^4 c^2 d^6 (e+f x)\, \text{Cos}[2 (e+f x)] + \\
&\quad 4 a^3 b c d^7 (e+f x)\, \text{Cos}[2 (e+f x)] - 4 a b^3 c d^7 (e+f x)\, \text{Cos}[2 (e+f x)] - b^4 c^8\, \text{Sin}[2 (e+f x)] + 6 a^2 b^2 c^6 d^2\, \text{Sin}[2 (e+f x)] - \\
&\quad 5 b^4 c^6 d^2\, \text{Sin}[2 (e+f x)] - 8 a^3 b c^5 d^3\, \text{Sin}[2 (e+f x)] + 12 a b^3 c^5 d^3\, \text{Sin}[2 (e+f x)] + 3 a^4 c^4 d^4\, \text{Sin}[2 (e+f x)] - \\
&\quad 6 a^2 b^2 c^4 d^4\, \text{Sin}[2 (e+f x)] - 4 b^4 c^4 d^4\, \text{Sin}[2 (e+f x)] - 4 a^3 b c^3 d^5\, \text{Sin}[2 (e+f x)] + 12 a b^3 c^3 d^5\, \text{Sin}[2 (e+f x)] + \\
&\quad 3 a^4 c^2 d^6\, \text{Sin}[2 (e+f x)] - 12 a^2 b^2 c^2 d^6\, \text{Sin}[2 (e+f x)] + 4 a^3 b c d^7\, \text{Sin}[2 (e+f x)] + 2 a^4 c^5 d^3 (e+f x)\, \text{Sin}[2 (e+f x)] - \\
&\quad 12 a^2 b^2 c^5 d^3 (e+f x)\, \text{Sin}[2 (e+f x)] + 2 b^4 c^5 d^3 (e+f x)\, \text{Sin}[2 (e+f x)] + 24 a^3 b c^4 d^4 (e+f x)\, \text{Sin}[2 (e+f x)] - \\
&\quad 24 a b^3 c^4 d^4 (e+f x)\, \text{Sin}[2 (e+f x)] - 6 a^4 c^3 d^5 (e+f x)\, \text{Sin}[2 (e+f x)] + 36 a^2 b^2 c^3 d^5 (e+f x)\, \text{Sin}[2 (e+f x)] - \\
&\quad 6 b^4 c^3 d^5 (e+f x)\, \text{Sin}[2 (e+f x)] - 8 a^3 b c^2 d^6 (e+f x)\, \text{Sin}[2 (e+f x)] + 8 a b^3 c^2 d^6 (e+f x)\, \text{Sin}[2 (e+f x)]\big)\, (a + b\, \text{Tan}[e+f x])^4\Big) \Big/ \\
&\Big(2 c\, (c - \mathbb{i}\, d)^3 (c + \mathbb{i}\, d)^3 d^2 f\, (a\, \text{Cos}[e+f x] + b\, \text{Sin}[e+f x])^4 (c + d\, \text{Tan}[e+f x])^3\Big)
\end{aligned}
$$

- **Problem 1224: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a + b\, \text{Tan}[e+f x])^3}{(c + d\, \text{Tan}[e+f x])^3}\, dx$$

Optimal (type 3, 240 leaves, 4 steps):

$$\frac{(a c+b d)\left(8 a b c d+a^2\left(c^2-3 d^2\right)-b^2\left(3 c^2-d^2\right)\right) x}{\left(c^2+d^2\right)^3}-\frac{(b c-a d)\left(8 a b c d-b^2\left(c^2-3 d^2\right)+a^2\left(3 c^2-d^2\right)\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{\left(c^2+d^2\right)^3 f}-\frac{(b c-a d)^2 (a+b \text{Tan}[e+f x])}{2 d\left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^2}-\frac{(b c-a d)^2\left(4 a c d+b\left(c^2+5 d^2\right)\right)}{2 d^2\left(c^2+d^2\right)^2 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 2013 leaves) :

$$\begin{aligned}
&\Big(\Big(-3 i a^2 b c^{10}+i b^3 c^{10}+3 i a^3 c^9 d-3 a^2 b c^9 d-9 i a b^2 c^9 d+b^3 c^9 d+3 a^3 c^8 d^2+3 i a^2 b c^8 d^2-9 a b^2 c^8 d^2-i b^3 c^8 d^2+5 i a^3 c^7 d^3+3 a^2 b c^7 d^3- \\
&\quad 15 i a b^2 c^7 d^3-b^3 c^7 d^3+5 a^3 c^6 d^4+15 i a^2 b c^6 d^4-15 a b^2 c^6 d^4-5 i b^3 c^6 d^4+i a^3 c^5 d^5+15 a^2 b c^5 d^5-3 i a b^2 c^5 d^5-5 b^3 c^5 d^5+ \\
&\quad a^3 c^4 d^6+9 i a^2 b c^4 d^6-3 a b^2 c^4 d^6-3 i b^3 c^4 d^6-i a^3 c^3 d^7+9 a^2 b c^3 d^7+3 i a b^2 c^3 d^7-3 b^3 c^3 d^7-a^3 c^2 d^8+3 a b^2 c^2 d^8\Big) (e+f x) \\
&\quad (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3 (a+b \text{Tan}[e+f x])^3\Big) \Big/ \left(c^2 (c-i d)^6 (c+i d)^5 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right)- \\
&\Big(i \left(-3 a^2 b c^3+b^3 c^3+3 a^3 c^2 d-9 a b^2 c^2 d+9 a^2 b c d^2-3 b^3 c d^2-a^3 d^3+3 a b^2 d^3\right) \text{ArcTan}[\text{Tan}[e+f x]] \\
&\quad (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3 (a+b \text{Tan}[e+f x])^3\Big) \Big/ \left(\left(c^2+d^2\right)^3 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right)+ \\
&\Big(\left(-3 a^2 b c^3+b^3 c^3+3 a^3 c^2 d-9 a b^2 c^2 d+9 a^2 b c d^2-3 b^3 c d^2-a^3 d^3+3 a b^2 d^3\right) \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right] \\
&\quad (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3 (a+b \text{Tan}[e+f x])^3\Big) \Big/ \left(2 \left(c^2+d^2\right)^3 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right)+ \\
&\Big((c \text{Cos}[e+f x]+d \text{Sin}[e+f x]) \Big(b^3 c^6-3 a^2 b c^4 d^2+4 b^3 c^4 d^2+2 a^3 c^3 d^3-6 a b^2 c^3 d^3+3 b^3 c^2 d^4+2 a^3 c d^5-6 a b^2 c d^5+3 a^2 b d^6+ \\
&\quad a^3 c^6 (e+f x)-3 a b^2 c^6 (e+f x)+9 a^2 b c^5 d (e+f x)-3 b^3 c^5 d (e+f x)-2 a^3 c^4 d^2 (e+f x)+6 a b^2 c^4 d^2 (e+f x)+6 a^2 b c^3 d^3 (e+f x)- \\
&\quad 2 b^3 c^3 d^3 (e+f x)-3 a^3 c^2 d^4 (e+f x)+9 a b^2 c^2 d^4 (e+f x)-3 a^2 b c d^5 (e+f x)+b^3 c d^5 (e+f x)-3 a b^2 c^5 d \text{Cos}[2 (e+f x)]+ \\
&\quad 6 a^2 b c^4 d^2 \text{Cos}[2 (e+f x)]-3 b^3 c^4 d^2 \text{Cos}[2 (e+f x)]-3 a^3 c^3 d^3 \text{Cos}[2 (e+f x)]+3 a b^2 c^3 d^3 \text{Cos}[2 (e+f x)]+ \\
&\quad 3 a^2 b c^2 d^4 \text{Cos}[2 (e+f x)]-3 b^3 c^2 d^4 \text{Cos}[2 (e+f x)]-3 a^3 c d^5 \text{Cos}[2 (e+f x)]+6 a b^2 c d^5 \text{Cos}[2 (e+f x)]-3 a^2 b d^6 \text{Cos}[2 (e+f x)]+ \\
&\quad a^3 c^6 (e+f x) \text{Cos}[2 (e+f x)]-3 a b^2 c^6 (e+f x) \text{Cos}[2 (e+f x)]+9 a^2 b c^5 d (e+f x) \text{Cos}[2 (e+f x)]-3 b^3 c^5 d (e+f x) \text{Cos}[2 (e+f x)]- \\
&\quad 4 a^3 c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+12 a b^2 c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]-12 a^2 b c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]+4 b^3 c^3 d^3 (e+f x) \\
&\quad \text{Cos}[2 (e+f x)]+3 a^3 c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]-9 a b^2 c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]+3 a^2 b c d^5 (e+f x) \text{Cos}[2 (e+f x)]- \\
&\quad b^3 c d^5 (e+f x) \text{Cos}[2 (e+f x)]+3 a b^2 c^6 \text{Sin}[2 (e+f x)]-6 a^2 b c^5 d \text{Sin}[2 (e+f x)]+3 b^3 c^5 d \text{Sin}[2 (e+f x)]+ \\
&\quad 3 a^3 c^4 d^2 \text{Sin}[2 (e+f x)]-3 a b^2 c^4 d^2 \text{Sin}[2 (e+f x)]-3 a^2 b c^3 d^3 \text{Sin}[2 (e+f x)]+3 b^3 c^3 d^3 \text{Sin}[2 (e+f x)]+3 a^3 c^2 d^4 \text{Sin}[2 (e+f x)]- \\
&\quad 6 a b^2 c^2 d^4 \text{Sin}[2 (e+f x)]+3 a^2 b c d^5 \text{Sin}[2 (e+f x)]+2 a^3 c^5 d (e+f x) \text{Sin}[2 (e+f x)]-6 a b^2 c^5 d (e+f x) \text{Sin}[2 (e+f x)]+ \\
&\quad 18 a^2 b c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]-6 b^3 c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]-6 a^3 c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]+ \\
&\quad 18 a b^2 c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]-6 a^2 b c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]+2 b^3 c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]\Big) (a+b \text{Tan}[e+f x])^3\Big) \Big/ \\
&\left(2 c (c-i d)^3 (c+i d)^3 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c+d \text{Tan}[e+f x])^3\right)
\end{aligned}$$

- **Problem 1225: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \text{Tan}[e+f x])^2}{(c+d \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 221 leaves, 4 steps) :

$$-\frac{\left(b^2 c\left(c^2-3 d^2\right)-2 a b d\left(3 c^2-d^2\right)-a^2\left(c^3-3 c d^2\right)\right) x}{\left(c^2+d^2\right)^3}-\frac{\left(2 a b c\left(c^2-3 d^2\right)+b^2 d\left(3 c^2-d^2\right)-a^2\left(3 c^2 d-d^3\right)\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{\left(c^2+d^2\right)^3 f}-\frac{(b c-a d)^2}{2 d\left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^2}+\frac{2 (b c-a d)(a c+b d)}{\left(c^2+d^2\right)^2 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 1564 leaves):

$$\Big(\big(-2\,i\,a\,b\,c^{10}+3\,i\,a^2\,c^9\,d-2\,a\,b\,c^9\,d-3\,i\,b^2\,c^9\,d+3\,a^2\,c^8\,d^2+2\,i\,a\,b\,c^8\,d^2-3\,b^2\,c^8\,d^2+5\,i\,a^2\,c^7\,d^3+2\,a\,b\,c^7\,d^3-5\,i\,b^2\,c^7\,d^3+5\,a^2\,c^6\,d^4+10\,i\,a\,b\,c^6\,d^4-5\,b^2\,c^6\,d^4+i\,a^2\,c^5\,d^5+10\,a\,b\,c^5\,d^5-i\,b^2\,c^5\,d^5+a^2\,c^4\,d^6+6\,i\,a\,b\,c^4\,d^6-b^2\,c^4\,d^6-i\,a^2\,c^3\,d^7+6\,a\,b\,c^3\,d^7+i\,b^2\,c^3\,d^7-a^2\,c^2\,d^8+b^2\,c^2\,d^8\big)\,(e+f\,x)\,\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(c^2\,(c-i\,d)^6\,(c+i\,d)^5\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)-$$

$$\Big(i\,\big(-2\,a\,b\,c^3+3\,a^2\,c^2\,d-3\,b^2\,c^2\,d+6\,a\,b\,c\,d^2-a^2\,d^3+b^2\,d^3\big)\,\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(\big(c^2+d^2\big)^3\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)+$$

$$\Big(\big(-2\,a\,b\,c^3+3\,a^2\,c^2\,d-3\,b^2\,c^2\,d+6\,a\,b\,c\,d^2-a^2\,d^3+b^2\,d^3\big)\,\text{Log}\big[(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\big]\,\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\,(a+b\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(2\,\big(c^2+d^2\big)^3\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)+$$

$$\Big(\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\big(-2\,a\,b\,c^4\,d^2+2\,a^2\,c^3\,d^3-2\,b^2\,c^3\,d^3+2\,a^2\,c\,d^5-2\,b^2\,c\,d^5+2\,a\,b\,d^6+a^2\,c^6\,(e+f\,x)-b^2\,c^6\,(e+f\,x)+6\,a\,b\,c^5\,d\,(e+f\,x)-2\,a^2\,c^4\,d^2\,(e+f\,x)+2\,b^2\,c^4\,d^2\,(e+f\,x)+4\,a\,b\,c^3\,d^3\,(e+f\,x)-3\,a^2\,c^2\,d^4\,(e+f\,x)+3\,b^2\,c^2\,d^4\,(e+f\,x)-2\,a\,b\,c\,d^5\,(e+f\,x)-b^2\,c^5\,d\,\text{Cos}[2\,(e+f\,x)]+4\,a\,b\,c^4\,d^2\,\text{Cos}[2\,(e+f\,x)]-3\,a^2\,c^3\,d^3\,\text{Cos}[2\,(e+f\,x)]+b^2\,c^3\,d^3\,\text{Cos}[2\,(e+f\,x)]+2\,a\,b\,c^2\,d^4\,\text{Cos}[2\,(e+f\,x)]-3\,a^2\,c\,d^5\,\text{Cos}[2\,(e+f\,x)]+2\,b^2\,c\,d^5\,\text{Cos}[2\,(e+f\,x)]-2\,a\,b\,d^6\,\text{Cos}[2\,(e+f\,x)]+a^2\,c^6\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-b^2\,c^6\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+6\,a\,b\,c^5\,d\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-4\,a^2\,c^4\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+4\,b^2\,c^4\,d^2\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-8\,a\,b\,c^3\,d^3\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+3\,a^2\,c^2\,d^4\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]-3\,b^2\,c^2\,d^4\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+2\,a\,b\,c\,d^5\,(e+f\,x)\,\text{Cos}[2\,(e+f\,x)]+b^2\,c^6\,\text{Sin}[2\,(e+f\,x)]-4\,a\,b\,c^5\,d\,\text{Sin}[2\,(e+f\,x)]+3\,a^2\,c^4\,d^2\,\text{Sin}[2\,(e+f\,x)]-b^2\,c^4\,d^2\,\text{Sin}[2\,(e+f\,x)]-2\,a\,b\,c^3\,d^3\,\text{Sin}[2\,(e+f\,x)]+3\,a^2\,c^2\,d^4\,\text{Sin}[2\,(e+f\,x)]-2\,b^2\,c^2\,d^4\,\text{Sin}[2\,(e+f\,x)]+2\,a\,b\,c\,d^5\,\text{Sin}[2\,(e+f\,x)]+2\,a^2\,c^5\,d\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-2\,b^2\,c^5\,d\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]+12\,a\,b\,c^4\,d^2\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-6\,a^2\,c^3\,d^3\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]+6\,b^2\,c^3\,d^3\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]-4\,a\,b\,c^2\,d^4\,(e+f\,x)\,\text{Sin}[2\,(e+f\,x)]\big)\,(a+b\,\text{Tan}[e+f\,x])^2\Big)\Big/\Big(2\,c\,(c-i\,d)^3\,(c+i\,d)^3\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)$$

- **Problem 1226: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{a+b\,\text{Tan}[e+f\,x]}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 177 leaves, 4 steps):

$$\frac{\big(a\,c^3+3\,b\,c^2\,d-3\,a\,c\,d^2-b\,d^3\big)\,x}{\big(c^2+d^2\big)^3}+\frac{\big(a\,d\,\big(3\,c^2-d^2\big)-b\,\big(c^3-3\,c\,d^2\big)\big)\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]}{\big(c^2+d^2\big)^3\,f}+\frac{b\,c-a\,d}{2\,\big(c^2+d^2\big)\,f\,(c+d\,\text{Tan}[e+f\,x])^2}-\frac{2\,a\,c\,d-b\,\big(c^2-d^2\big)}{\big(c^2+d^2\big)^2\,f\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 3, 854 leaves):

$$\frac{d^2 (b c - a d) \operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]) (a + b \operatorname{Tan}[e + f x])}{2 (c - i d)^2 (c + i d)^2 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3} +$$
$$\left(\left(a c^3 + 3 b c^2 d - 3 a c d^2 - b d^3\right) (e + f x) \operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^3 (a + b \operatorname{Tan}[e + f x])\right) \Big/$$
$$\left((c - i d)^3 (c + i d)^3 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3\right) +$$
$$\left(\left(-i b c^{10} + 3 i a c^9 d - b c^9 d + 3 a c^8 d^2 + i b c^8 d^2 + 5 i a c^7 d^3 + b c^7 d^3 + 5 a c^6 d^4 + 5 i b c^6 d^4 + i a c^5 d^5 + 5 b c^5 d^5 + a c^4 d^6 + \right.\right.$$
$$\left.\left. 3 i b c^4 d^6 - i a c^3 d^7 + 3 b c^3 d^7 - a c^2 d^8\right) (e + f x) \operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^3 (a + b \operatorname{Tan}[e + f x])\right) \Big/$$
$$\left(c^2 (c - i d)^6 (c + i d)^5 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3\right) -$$
$$\left(i \left(-b c^3 + 3 a c^2 d + 3 b c d^2 - a d^3\right) \operatorname{ArcTan}[\operatorname{Tan}[e + f x]] \operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^3 (a + b \operatorname{Tan}[e + f x])\right) \Big/$$
$$\left(\left(c^2 + d^2\right)^3 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3\right) +$$
$$\left(\left(-b c^3 + 3 a c^2 d + 3 b c d^2 - a d^3\right) \operatorname{Log}\left[(c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2\right] \operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^3 (a + b \operatorname{Tan}[e + f x])\right) \Big/$$
$$\left(2 \left(c^2 + d^2\right)^3 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3\right) +$$
$$\left(\operatorname{Sec}[e + f x]^2 (c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x])^2 \left(-2 b c^2 d \operatorname{Sin}[e + f x] + 3 a c d^2 \operatorname{Sin}[e + f x] + b d^3 \operatorname{Sin}[e + f x]\right) (a + b \operatorname{Tan}[e + f x])\right) \Big/$$
$$\left(c (c - i d)^2 (c + i d)^2 f (a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3\right)$$

- **Problem 1227: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a + b \operatorname{Tan}[e + f x]) (c + d \operatorname{Tan}[e + f x])^3} \, dx$$

Optimal (type 3, 286 leaves, 5 steps):

$$-\frac{\left(b d \left(3 c^2 - d^2\right) - a \left(c^3 - 3 c d^2\right)\right) x}{\left(a^2 + b^2\right) \left(c^2 + d^2\right)^3} + \frac{b^4 \operatorname{Log}[a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]]}{\left(a^2 + b^2\right) (b c - a d)^3 f} +$$
$$\frac{d^2 \left(8 a b c^3 d - a^2 d^2 \left(3 c^2 - d^2\right) - b^2 \left(6 c^4 + 3 c^2 d^2 + d^4\right)\right) \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(b c - a d)^3 \left(c^2 + d^2\right)^3 f} +$$
$$\frac{d^2}{2 (b c - a d) \left(c^2 + d^2\right) f (c + d \operatorname{Tan}[e + f x])^2} - \frac{d^2 \left(2 a c d - b \left(3 c^2 + d^2\right)\right)}{(b c - a d)^2 \left(c^2 + d^2\right)^2 f (c + d \operatorname{Tan}[e + f x])}$$

Result (type 3, 2281 leaves):

$$\frac{d^4\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}{2\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3}+$$

$$\left(\left(a\,c^3-3\,b\,c^2\,d-3\,a\,c\,d^2+b\,d^3\right)\,(e+f\,x)\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)\Big/$$
$$\left((a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(c-\mathrm{i}\,d)^3\,(c+\mathrm{i}\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)-$$

$$\Big(\Big(-6\,\mathrm{i}\,a^6\,b^4\,c^{13}\,d^2-12\,\mathrm{i}\,a^4\,b^6\,c^{13}\,d^2-6\,\mathrm{i}\,a^2\,b^8\,c^{13}\,d^2+20\,\mathrm{i}\,a^7\,b^3\,c^{12}\,d^3-6\,a^6\,b^4\,c^{12}\,d^3+40\,\mathrm{i}\,a^5\,b^5\,c^{12}\,d^3-12\,a^4\,b^6\,c^{12}\,d^3+20\,\mathrm{i}\,a^3\,b^7\,c^{12}\,d^3-$$
$$6\,a^2\,b^8\,c^{12}\,d^3-25\,\mathrm{i}\,a^8\,b^2\,c^{11}\,d^4+20\,a^7\,b^3\,c^{11}\,d^4-65\,\mathrm{i}\,a^6\,b^4\,c^{11}\,d^4+40\,a^5\,b^5\,c^{11}\,d^4-55\,\mathrm{i}\,a^4\,b^6\,c^{11}\,d^4+20\,a^3\,b^7\,c^{11}\,d^4-15\,\mathrm{i}\,a^2\,b^8\,c^{11}\,d^4+$$
$$14\,\mathrm{i}\,a^9\,b\,c^{10}\,d^5-25\,a^8\,b^2\,c^{10}\,d^5+74\,\mathrm{i}\,a^7\,b^3\,c^{10}\,d^5-65\,a^6\,b^4\,c^{10}\,d^5+106\,\mathrm{i}\,a^5\,b^5\,c^{10}\,d^5-55\,a^4\,b^6\,c^{10}\,d^5+46\,\mathrm{i}\,a^3\,b^7\,c^{10}\,d^5-15\,a^2\,b^8\,c^{10}\,d^5-$$
$$3\,\mathrm{i}\,a^{10}\,c^9\,d^6+14\,a^9\,b\,c^9\,d^6-58\,\mathrm{i}\,a^8\,b^2\,c^9\,d^6+74\,a^7\,b^3\,c^9\,d^6-120\,\mathrm{i}\,a^6\,b^4\,c^9\,d^6+106\,a^5\,b^5\,c^9\,d^6-78\,\mathrm{i}\,a^4\,b^6\,c^9\,d^6+46\,a^3\,b^7\,c^9\,d^6-$$
$$13\,\mathrm{i}\,a^2\,b^8\,c^9\,d^6-3\,a^{10}\,c^8\,d^7+26\,\mathrm{i}\,a^9\,b\,c^8\,d^7-58\,a^8\,b^2\,c^8\,d^7+86\,\mathrm{i}\,a^7\,b^3\,c^8\,d^7-120\,a^6\,b^4\,c^8\,d^7+94\,\mathrm{i}\,a^5\,b^5\,c^8\,d^7-78\,a^4\,b^6\,c^8\,d^7+$$
$$34\,\mathrm{i}\,a^3\,b^7\,c^8\,d^7-13\,a^2\,b^8\,c^8\,d^7-5\,\mathrm{i}\,a^{10}\,c^7\,d^8+26\,a^9\,b\,c^7\,d^8-40\,\mathrm{i}\,a^8\,b^2\,c^7\,d^8+86\,a^7\,b^3\,c^7\,d^8-70\,\mathrm{i}\,a^6\,b^4\,c^7\,d^8+94\,a^5\,b^5\,c^7\,d^8-$$
$$40\,\mathrm{i}\,a^4\,b^6\,c^7\,d^8+34\,a^3\,b^7\,c^7\,d^8-5\,\mathrm{i}\,a^2\,b^8\,c^7\,d^8-5\,a^{10}\,c^6\,d^9+10\,\mathrm{i}\,a^9\,b\,c^6\,d^9-40\,a^8\,b^2\,c^6\,d^9+30\,\mathrm{i}\,a^7\,b^3\,c^6\,d^9-70\,a^6\,b^4\,c^6\,d^9+$$
$$30\,\mathrm{i}\,a^5\,b^5\,c^6\,d^9-40\,a^4\,b^6\,c^6\,d^9+10\,\mathrm{i}\,a^3\,b^7\,c^6\,d^9-5\,a^2\,b^8\,c^6\,d^9-\mathrm{i}\,a^{10}\,c^5\,d^{10}+10\,a^9\,b\,c^5\,d^{10}-6\,\mathrm{i}\,a^8\,b^2\,c^5\,d^{10}+30\,a^7\,b^3\,c^5\,d^{10}-$$
$$10\,\mathrm{i}\,a^6\,b^4\,c^5\,d^{10}+30\,a^5\,b^5\,c^5\,d^{10}-6\,\mathrm{i}\,a^4\,b^6\,c^5\,d^{10}+10\,a^3\,b^7\,c^5\,d^{10}-\mathrm{i}\,a^2\,b^8\,c^5\,d^{10}-a^{10}\,c^4\,d^{11}-2\,\mathrm{i}\,a^9\,b\,c^4\,d^{11}-6\,a^8\,b^2\,c^4\,d^{11}-$$
$$2\,\mathrm{i}\,a^7\,b^3\,c^4\,d^{11}-10\,a^6\,b^4\,c^4\,d^{11}+2\,\mathrm{i}\,a^5\,b^5\,c^4\,d^{11}-6\,a^4\,b^6\,c^4\,d^{11}+2\,\mathrm{i}\,a^3\,b^7\,c^4\,d^{11}-a^2\,b^8\,c^4\,d^{11}+\mathrm{i}\,a^{10}\,c^3\,d^{12}-2\,a^9\,b\,c^3\,d^{12}+\mathrm{i}\,a^8\,b^2\,c^3\,d^{12}-$$
$$2\,a^7\,b^3\,c^3\,d^{12}-\mathrm{i}\,a^6\,b^4\,c^3\,d^{12}+2\,a^5\,b^5\,c^3\,d^{12}-\mathrm{i}\,a^4\,b^6\,c^3\,d^{12}+2\,a^3\,b^7\,c^3\,d^{12}+a^{10}\,c^2\,d^{13}+a^8\,b^2\,c^2\,d^{13}-a^6\,b^4\,c^2\,d^{13}-a^4\,b^6\,c^2\,d^{13}\Big)$$
$$(e+f\,x)\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\Big)\Big/$$
$$\left(a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\left(a^2+b^2\right)\,c^2\,(c-\mathrm{i}\,d)^6\,(c+\mathrm{i}\,d)^5\,(-b\,c+a\,d)^5\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\Big(\mathrm{i}\,\left(6\,b^2\,c^4\,d^2-8\,a\,b\,c^3\,d^3+3\,a^2\,c^2\,d^4+3\,b^2\,c^2\,d^4-a^2\,d^6+b^2\,d^6\right)\,\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]$$
$$\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\Big)\Big/$$
$$\left((b\,c-a\,d)^3\,\left(c^2+d^2\right)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)-$$

$$\left(b^4\,\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]\,\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)\Big/$$
$$\left(\left(a^2+b^2\right)\,(-b\,c+a\,d)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)-$$

$$\Big(\left(6\,b^2\,c^4\,d^2-8\,a\,b\,c^3\,d^3+3\,a^2\,c^2\,d^4+3\,b^2\,c^2\,d^4-a^2\,d^6+b^2\,d^6\right)\,\mathrm{Log}\left[(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right]$$
$$\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\Big)\Big/$$
$$\left(2\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)^3\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\left(\mathrm{Sec}[e+f\,x]^4\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\,\left(-4\,b\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]+3\,a\,c\,d^4\,\mathrm{Sin}[e+f\,x]-b\,d^5\,\mathrm{Sin}[e+f\,x]\right)\right)\Big/$$
$$\left(c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,(b\,c-a\,d)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)$$

- **Problem 1228: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 457 leaves, 6 steps) :

$$-\frac{\left(b^2 c \left(c^2-3 d^2\right)-a^2 \left(c^3-3 c d^2\right)+a b \left(6 c^2 d-2 d^3\right)\right) x}{\left(a^2+b^2\right)^2 \left(c^2+d^2\right)^3}+\frac{b^4 \left(2 a b c-5 a^2 d-3 b^2 d\right) \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]}{\left(a^2+b^2\right)^2 (b c-a d)^4 f}+$$

$$\frac{d^3 \left(a^2 d^2 \left(3 c^2-d^2\right)-2 a b c d \left(5 c^2+d^2\right)+b^2 \left(10 c^4+9 c^2 d^2+3 d^4\right)\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{(b c-a d)^4 \left(c^2+d^2\right)^3 f}-$$

$$\frac{d \left(a^2 d^2+b^2 \left(2 c^2+3 d^2\right)\right)}{2 \left(a^2+b^2\right) (b c-a d)^2 \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^2}-\frac{b^2}{\left(a^2+b^2\right) (b c-a d) f (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2}+$$

$$\frac{d \left(2 a^3 c d^3+2 a b^2 c d^3-2 a^2 b d^2 \left(2 c^2+d^2\right)-b^3 \left(c^4+6 c^2 d^2+3 d^4\right)\right)}{\left(a^2+b^2\right) (b c-a d)^3 \left(c^2+d^2\right)^2 f (c+d \text{Tan}[e+f x])}$$

Result (type 3, 6822 leaves):

$$\Big(\Big(2 a^6 b^7 c^{16}-2 i a^5 b^8 c^{16}+2 a^4 b^9 c^{16}-2 i a^3 b^{10} c^{16}-9 a^7 b^6 c^{15} d+7 i a^6 b^7 c^{15} d-14 a^5 b^8 c^{15} d+10 i a^4 b^9 c^{15} d-5 a^3 b^{10} c^{15} d+3 i a^2 b^{11} c^{15} d+$$
$$12 a^8 b^5 c^{14} d^2-3 i a^7 b^6 c^{14} d^2+37 a^6 b^7 c^{14} d^2-16 i a^5 b^8 c^{14} d^2+28 a^4 b^9 c^{14} d^2-13 i a^3 b^{10} c^{14} d^2+3 a^2 b^{11} c^{14} d^2+5 a^9 b^4 c^{13} d^3-$$
$$17 i a^8 b^5 c^{13} d^3-35 a^7 b^6 c^{13} d^3-5 i a^6 b^7 c^{13} d^3-61 a^5 b^8 c^{13} d^3+17 i a^4 b^9 c^{13} d^3-21 a^3 b^{10} c^{13} d^3+5 i a^2 b^{11} c^{13} d^3-30 a^{10} b^3 c^{12} d^4+$$
$$25 i a^9 b^4 c^{12} d^4-35 a^8 b^5 c^{12} d^4+53 i a^7 b^6 c^{12} d^4+43 a^6 b^7 c^{12} d^4+13 i a^5 b^8 c^{12} d^4+53 a^4 b^9 c^{12} d^4-15 i a^3 b^{10} c^{12} d^4+5 a^2 b^{11} c^{12} d^4+$$
$$33 a^{11} b^2 c^{11} d^5-3 i a^{10} b^3 c^{11} d^5+133 a^9 b^4 c^{11} d^5-73 i a^8 b^5 c^{11} d^5+86 a^7 b^6 c^{11} d^5-76 i a^6 b^7 c^{11} d^5-35 a^5 b^8 c^{11} d^5-5 i a^4 b^9 c^{11} d^5-$$
$$21 a^3 b^{10} c^{11} d^5+i a^2 b^{11} c^{11} d^5-16 a^{12} b c^{10} d^6-17 i a^{11} b^2 c^{10} d^6-161 a^{10} b^3 c^{10} d^6+25 i a^9 b^4 c^{10} d^6-271 a^8 b^5 c^{10} d^6+112 i a^7 b^6 c^{10} d^6-$$
$$112 a^6 b^7 c^{10} d^6+71 i a^5 b^8 c^{10} d^6+15 a^4 b^9 c^{10} d^6+i a^3 b^{10} c^{10} d^6+a^2 b^{11} c^{10} d^6+3 a^{13} c^9 d^7+13 i a^{12} b c^9 d^7+103 a^{11} b^2 c^9 d^7+41 i a^{10} b^3 c^9 d^7+$$
$$352 a^9 b^4 c^9 d^7-56 i a^8 b^5 c^9 d^7+328 a^7 b^6 c^9 d^7-104 i a^6 b^7 c^9 d^7+77 a^5 b^8 c^9 d^7-21 i a^4 b^9 c^9 d^7+a^3 b^{10} c^9 d^7-i a^2 b^{11} c^9 d^7-3 i a^{13} c^8 d^8-$$
$$35 a^{12} b c^8 d^8-55 i a^{11} b^2 c^8 d^8-259 a^{10} b^3 c^8 d^8-52 i a^9 b^4 c^8 d^8-428 a^8 b^5 c^8 d^8+44 i a^7 b^6 c^8 d^8-230 a^6 b^7 c^8 d^8+49 i a^5 b^8 c^8 d^8-$$
$$27 a^4 b^9 c^8 d^8+5 i a^3 b^{10} c^8 d^8-a^2 b^{11} c^8 d^8+5 a^{13} c^7 d^9+27 i a^{12} b c^7 d^9+107 a^{11} b^2 c^7 d^9+97 i a^{10} b^3 c^7 d^9+332 a^9 b^4 c^7 d^9+44 i a^8 b^5 c^7 d^9+$$
$$309 a^7 b^6 c^7 d^9-35 i a^6 b^7 c^7 d^9+85 a^5 b^8 c^7 d^9-9 i a^4 b^9 c^7 d^9+6 a^3 b^{10} c^7 d^9-5 i a^{13} c^6 d^{10}-21 a^{12} b c^6 d^{10}-59 i a^{11} b^2 c^6 d^{10}-$$
$$155 a^{10} b^3 c^6 d^{10}-80 i a^9 b^4 c^6 d^{10}-244 a^8 b^5 c^6 d^{10}-21 i a^7 b^6 c^6 d^{10}-125 a^6 b^7 c^6 d^{10}+5 i a^5 b^8 c^6 d^{10}-15 a^4 b^9 c^6 d^{10}+a^{13} c^5 d^{11}+$$
$$15 i a^{12} b c^5 d^{11}+37 a^{11} b^2 c^5 d^{11}+59 i a^{10} b^3 c^5 d^{11}+115 a^9 b^4 c^5 d^{11}+49 i a^8 b^5 c^5 d^{11}+99 a^7 b^6 c^5 d^{11}+5 i a^6 b^7 c^5 d^{11}+20 a^5 b^8 c^5 d^{11}-$$
$$i a^{13} c^4 d^{12}-a^{12} b c^4 d^{12}-21 i a^{11} b^2 c^4 d^{12}-27 a^{10} b^3 c^4 d^{12}-29 i a^9 b^4 c^4 d^{12}-41 a^8 b^5 c^4 d^{12}-9 i a^7 b^6 c^4 d^{12}-15 a^6 b^7 c^4 d^{12}-a^{13} c^3 d^{13}+$$
$$i a^{12} b c^3 d^{13}+6 i a^{10} b^3 c^3 d^{13}+7 a^9 b^4 c^3 d^{13}+5 i a^8 b^5 c^3 d^{13}+6 a^7 b^6 c^3 d^{13}+i a^{13} c^2 d^{14}+a^{12} b c^2 d^{14}-i a^9 b^4 c^2 d^{14}-a^8 b^5 c^2 d^{14}\Big)$$
$$(e+f x) \text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\Big)\Big/$$
$$\Big(a^2 (a-i b)^4 (a+i b)^2 (-i a+b) c^2 (c-i d)^6 (c+i d)^5 (-b c+a d)^6 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3\Big)-$$
$$\Big(i \left(2 a b^5 c-5 a^2 b^4 d-3 b^6 d\right) \text{ArcTan}[\text{Tan}[e+f x]] \text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\Big)\Big/$$
$$\Big(\left(a^2+b^2\right)^2 (-b c+a d)^4 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3\Big)-$$
$$\Big(i \left(10 b^2 c^4 d^3-10 a b c^3 d^4+3 a^2 c^2 d^5+9 b^2 c^2 d^5-2 a b c d^6-a^2 d^7+3 b^2 d^7\right) \text{ArcTan}[\text{Tan}[e+f x]]$$
$$\text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\Big)\Big/$$
$$\Big((b c-a d)^4 \left(c^2+d^2\right)^3 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3\Big)+$$
$$\Big(\left(2 a b^5 c-5 a^2 b^4 d-3 b^6 d\right) \text{Log}\left[(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2\right] \text{Sec}[e+f x]^5$$
$$(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\Big)\Big/$$
$$\Big(2 \left(a^2+b^2\right)^2 (-b c+a d)^4 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3\Big)+$$
$$\Big(\left(10 b^2 c^4 d^3-10 a b c^3 d^4+3 a^2 c^2 d^5+9 b^2 c^2 d^5-2 a b c d^6-a^2 d^7+3 b^2 d^7\right) \text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right]$$
$$\text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\Big)\Big/$$

$$\left(2\,(b\,c-a\,d)^4\,\left(c^2+d^2\right)^3\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\right)-$$

$$\left(\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right.$$

$$\left(2\,a^2\,b^5\,c^8\,d\,\text{Cos}[e+f\,x]+2\,b^7\,c^8\,d\,\text{Cos}[e+f\,x]+6\,a^2\,b^5\,c^6\,d^3\,\text{Cos}[e+f\,x]+6\,b^7\,c^6\,d^3\,\text{Cos}[e+f\,x]+5\,a^5\,b^2\,c^5\,d^4\,\text{Cos}[e+f\,x]+\right.$$

$$10\,a^3\,b^4\,c^5\,d^4\,\text{Cos}[e+f\,x]+5\,a\,b^6\,c^5\,d^4\,\text{Cos}[e+f\,x]+6\,a^2\,b^5\,c^4\,d^5\,\text{Cos}[e+f\,x]+6\,b^7\,c^4\,d^5\,\text{Cos}[e+f\,x]-a^7\,c^3\,d^6\,\text{Cos}[e+f\,x]+$$

$$5\,a^5\,b^2\,c^3\,d^6\,\text{Cos}[e+f\,x]+13\,a^3\,b^4\,c^3\,d^6\,\text{Cos}[e+f\,x]+7\,a\,b^6\,c^3\,d^6\,\text{Cos}[e+f\,x]+2\,a^6\,b\,c^2\,d^7\,\text{Cos}[e+f\,x]+4\,a^4\,b^3\,c^2\,d^7\,\text{Cos}[e+f\,x]+$$

$$4\,a^2\,b^5\,c^2\,d^7\,\text{Cos}[e+f\,x]+2\,b^7\,c^2\,d^7\,\text{Cos}[e+f\,x]-a^7\,c\,d^8\,\text{Cos}[e+f\,x]+3\,a^3\,b^4\,c\,d^8\,\text{Cos}[e+f\,x]+2\,a\,b^6\,c\,d^8\,\text{Cos}[e+f\,x]+$$

$$2\,a^6\,b\,d^9\,\text{Cos}[e+f\,x]+4\,a^4\,b^3\,d^9\,\text{Cos}[e+f\,x]+2\,a^2\,b^5\,d^9\,\text{Cos}[e+f\,x]+3\,a^4\,b^3\,c^9\,(e+f\,x)\,\text{Cos}[e+f\,x]-3\,a^2\,b^5\,c^9\,(e+f\,x)\,\text{Cos}[e+f\,x]-$$

$$9\,a^5\,b^2\,c^8\,d\,(e+f\,x)\,\text{Cos}[e+f\,x]-7\,a^3\,b^4\,c^8\,d\,(e+f\,x)\,\text{Cos}[e+f\,x]-2\,a\,b^6\,c^8\,d\,(e+f\,x)\,\text{Cos}[e+f\,x]+9\,a^6\,b\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$

$$31\,a^4\,b^3\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[e+f\,x]+2\,a^2\,b^5\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[e+f\,x]-3\,a^7\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]-21\,a^5\,b^2\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$

$$6\,a\,b^6\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]-8\,a^6\,b\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]+5\,a^4\,b^3\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]-11\,a^2\,b^5\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$

$$8\,a^7\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[e+f\,x]-5\,a^5\,b^2\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[e+f\,x]-a^3\,b^4\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[e+f\,x]-3\,a^6\,b\,c^3\,d^6\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$

$$9\,a^4\,b^3\,c^3\,d^6\,(e+f\,x)\,\text{Cos}[e+f\,x]+3\,a^7\,c^2\,d^7\,(e+f\,x)\,\text{Cos}[e+f\,x]-a^5\,b^2\,c^2\,d^7\,(e+f\,x)\,\text{Cos}[e+f\,x]-2\,a^6\,b\,c\,d^8\,(e+f\,x)\,\text{Cos}[e+f\,x]-$$

$$2\,a^2\,b^5\,c^8\,d\,\text{Cos}[3\,(e+f\,x)]-2\,b^7\,c^8\,d\,\text{Cos}[3\,(e+f\,x)]-6\,a^2\,b^5\,c^6\,d^3\,\text{Cos}[3\,(e+f\,x)]-6\,b^7\,c^6\,d^3\,\text{Cos}[3\,(e+f\,x)]-$$

$$5\,a^5\,b^2\,c^5\,d^4\,\text{Cos}[3\,(e+f\,x)]-10\,a^3\,b^4\,c^5\,d^4\,\text{Cos}[3\,(e+f\,x)]-5\,a\,b^6\,c^5\,d^4\,\text{Cos}[3\,(e+f\,x)]-2\,a^6\,b\,c^4\,d^5\,\text{Cos}[3\,(e+f\,x)]-$$

$$4\,a^4\,b^3\,c^4\,d^5\,\text{Cos}[3\,(e+f\,x)]-8\,a^2\,b^5\,c^4\,d^5\,\text{Cos}[3\,(e+f\,x)]-6\,b^7\,c^4\,d^5\,\text{Cos}[3\,(e+f\,x)]+3\,a^7\,c^3\,d^6\,\text{Cos}[3\,(e+f\,x)]-$$

$$a^5\,b^2\,c^3\,d^6\,\text{Cos}[3\,(e+f\,x)]-11\,a^3\,b^4\,c^3\,d^6\,\text{Cos}[3\,(e+f\,x)]-7\,a\,b^6\,c^3\,d^6\,\text{Cos}[3\,(e+f\,x)]-4\,a^6\,b\,c^2\,d^7\,\text{Cos}[3\,(e+f\,x)]-$$

$$8\,a^4\,b^3\,c^2\,d^7\,\text{Cos}[3\,(e+f\,x)]-6\,a^2\,b^5\,c^2\,d^7\,\text{Cos}[3\,(e+f\,x)]-2\,b^7\,c^2\,d^7\,\text{Cos}[3\,(e+f\,x)]+3\,a^7\,c\,d^8\,\text{Cos}[3\,(e+f\,x)]+$$

$$4\,a^5\,b^2\,c\,d^8\,\text{Cos}[3\,(e+f\,x)]-a^3\,b^4\,c\,d^8\,\text{Cos}[3\,(e+f\,x)]-2\,a\,b^6\,c\,d^8\,\text{Cos}[3\,(e+f\,x)]-2\,a^6\,b\,d^9\,\text{Cos}[3\,(e+f\,x)]-$$

$$4\,a^4\,b^3\,d^9\,\text{Cos}[3\,(e+f\,x)]-2\,a^2\,b^5\,d^9\,\text{Cos}[3\,(e+f\,x)]+a^4\,b^3\,c^9\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-a^2\,b^5\,c^9\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-$$

$$3\,a^5\,b^2\,c^8\,d\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-5\,a^3\,b^4\,c^8\,d\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+2\,a\,b^6\,c^8\,d\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$

$$3\,a^6\,b\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+17\,a^4\,b^3\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+10\,a^2\,b^5\,c^7\,d^2\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-$$

$$a^7\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-11\,a^5\,b^2\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-28\,a^3\,b^4\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-$$

$$6\,a\,b^6\,c^6\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-4\,a^6\,b\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+7\,a^4\,b^3\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$

$$11\,a^2\,b^5\,c^5\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+4\,a^7\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+17\,a^5\,b^2\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$

$$a^3\,b^4\,c^4\,d^5\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-5\,a^6\,b\,c^3\,d^6\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-9\,a^4\,b^3\,c^3\,d^6\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-$$

$$3\,a^7\,c^2\,d^7\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+a^5\,b^2\,c^2\,d^7\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+2\,a^6\,b\,c\,d^8\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+a^2\,b^5\,c^9\,\text{Sin}[e+f\,x]+$$

$$b^7\,c^9\,\text{Sin}[e+f\,x]+6\,a^2\,b^5\,c^7\,d^2\,\text{Sin}[e+f\,x]+6\,b^7\,c^7\,d^2\,\text{Sin}[e+f\,x]+5\,a^6\,b\,c^5\,d^4\,\text{Sin}[e+f\,x]+10\,a^4\,b^3\,c^5\,d^4\,\text{Sin}[e+f\,x]+$$

$$17\,a^2\,b^5\,c^5\,d^4\,\text{Sin}[e+f\,x]+12\,b^7\,c^5\,d^4\,\text{Sin}[e+f\,x]-3\,a^7\,c^4\,d^5\,\text{Sin}[e+f\,x]+7\,a^5\,b^2\,c^4\,d^5\,\text{Sin}[e+f\,x]+23\,a^3\,b^4\,c^4\,d^5\,\text{Sin}[e+f\,x]+$$

$$13\,a\,b^6\,c^4\,d^5\,\text{Sin}[e+f\,x]+10\,a^2\,b^5\,c^3\,d^6\,\text{Sin}[e+f\,x]+10\,b^7\,c^3\,d^6\,\text{Sin}[e+f\,x]-3\,a^7\,c^2\,d^7\,\text{Sin}[e+f\,x]+13\,a^5\,b^2\,c^2\,d^7\,\text{Sin}[e+f\,x]+$$

$$35\,a^3\,b^4\,c^2\,d^7\,\text{Sin}[e+f\,x]+19\,a\,b^6\,c^2\,d^7\,\text{Sin}[e+f\,x]-5\,a^6\,b\,c\,d^8\,\text{Sin}[e+f\,x]-10\,a^4\,b^3\,c\,d^8\,\text{Sin}[e+f\,x]-2\,a^2\,b^5\,c\,d^8\,\text{Sin}[e+f\,x]+$$

$$3\,b^7\,c\,d^8\,\text{Sin}[e+f\,x]+6\,a^5\,b^2\,d^9\,\text{Sin}[e+f\,x]+12\,a^3\,b^4\,d^9\,\text{Sin}[e+f\,x]+6\,a\,b^6\,d^9\,\text{Sin}[e+f\,x]+a^3\,b^4\,c^9\,(e+f\,x)\,\text{Sin}[e+f\,x]-$$

$$a\,b^6\,c^9\,(e+f\,x)\,\text{Sin}[e+f\,x]-a^4\,b^3\,c^8\,d\,(e+f\,x)\,\text{Sin}[e+f\,x]-5\,a^2\,b^5\,c^8\,d\,(e+f\,x)\,\text{Sin}[e+f\,x]-3\,a^5\,b^2\,c^7\,d^2\,(e+f\,x)\,\text{Sin}[e+f\,x]+$$

$$9\,a^3\,b^4\,c^7\,d^2\,(e+f\,x)\,\text{Sin}[e+f\,x]+5\,a^6\,b\,c^6\,d^3\,(e+f\,x)\,\text{Sin}[e+f\,x]+7\,a^4\,b^3\,c^6\,d^3\,(e+f\,x)\,\text{Sin}[e+f\,x]-10\,a^2\,b^5\,c^6\,d^3\,(e+f\,x)\,\text{Sin}[e+f\,x]-$$

$$2\,a^7\,c^5\,d^4\,(e+f\,x)\,\text{Sin}[e+f\,x]-10\,a^5\,b^2\,c^5\,d^4\,(e+f\,x)\,\text{Sin}[e+f\,x]+25\,a^3\,b^4\,c^5\,d^4\,(e+f\,x)\,\text{Sin}[e+f\,x]+9\,a\,b^6\,c^5\,d^4\,(e+f\,x)\,\text{Sin}[e+f\,x]-$$

$$6\,a^6\,b\,c^4\,d^5\,(e+f\,x)\,\text{Sin}[e+f\,x]-15\,a^4\,b^3\,c^4\,d^5\,(e+f\,x)\,\text{Sin}[e+f\,x]-21\,a^2\,b^5\,c^4\,d^5\,(e+f\,x)\,\text{Sin}[e+f\,x]+6\,a^7\,c^3\,d^6\,(e+f\,x)\,\text{Sin}[e+f\,x]-$$

$$5\,a^5\,b^2\,c^3\,d^6\,(e+f\,x)\,\text{Sin}[e+f\,x]+9\,a^3\,b^4\,c^3\,d^6\,(e+f\,x)\,\text{Sin}[e+f\,x]+5\,a^6\,b\,c^2\,d^7\,(e+f\,x)\,\text{Sin}[e+f\,x]+9\,a^4\,b^3\,c^2\,d^7\,(e+f\,x)\,\text{Sin}[e+f\,x]-$$

$$6\,a^5\,b^2\,c\,d^8\,(e+f\,x)\,\text{Sin}[e+f\,x]+a^2\,b^5\,c^9\,\text{Sin}[3\,(e+f\,x)]+b^7\,c^9\,\text{Sin}[3\,(e+f\,x)]+2\,a^2\,b^5\,c^7\,d^2\,\text{Sin}[3\,(e+f\,x)]+$$

$$2\,b^7\,c^7\,d^2\,\text{Sin}[3\,(e+f\,x)]+5\,a^6\,b\,c^5\,d^4\,\text{Sin}[3\,(e+f\,x)]+10\,a^4\,b^3\,c^5\,d^4\,\text{Sin}[3\,(e+f\,x)]+5\,a^2\,b^5\,c^5\,d^4\,\text{Sin}[3\,(e+f\,x)]-$$

$$3\,a^7\,c^4\,d^5\,\text{Sin}[3\,(e+f\,x)]-11\,a^5\,b^2\,c^4\,d^5\,\text{Sin}[3\,(e+f\,x)]-13\,a^3\,b^4\,c^4\,d^5\,\text{Sin}[3\,(e+f\,x)]-5\,a\,b^6\,c^4\,d^5\,\text{Sin}[3\,(e+f\,x)]+$$

$$10\,a^6\,b\,c^3\,d^6\,\text{Sin}[3\,(e+f\,x)]+20\,a^4\,b^3\,c^3\,d^6\,\text{Sin}[3\,(e+f\,x)]+8\,a^2\,b^5\,c^3\,d^6\,\text{Sin}[3\,(e+f\,x)]-2\,b^7\,c^3\,d^6\,\text{Sin}[3\,(e+f\,x)]-$$

$$3\,a^7\,c^2\,d^7\,\text{Sin}[3\,(e+f\,x)]-13\,a^5\,b^2\,c^2\,d^7\,\text{Sin}[3\,(e+f\,x)]-17\,a^3\,b^4\,c^2\,d^7\,\text{Sin}[3\,(e+f\,x)]-7\,a\,b^6\,c^2\,d^7\,\text{Sin}[3\,(e+f\,x)]+$$

$$5\,a^6\,b\,c\,d^8\,\text{Sin}[3\,(e+f\,x)]+10\,a^4\,b^3\,c\,d^8\,\text{Sin}[3\,(e+f\,x)]+4\,a^2\,b^5\,c\,d^8\,\text{Sin}[3\,(e+f\,x)]-b^7\,c\,d^8\,\text{Sin}[3\,(e+f\,x)]-2\,a^5\,b^2\,d^9\,\text{Sin}[3\,(e+f\,x)]-$$

$$4\,a^3\,b^4\,d^9\,\text{Sin}[3\,(e+f\,x)]-2\,a\,b^6\,d^9\,\text{Sin}[3\,(e+f\,x)]+a^3\,b^4\,c^9\,(e+f\,x)\,\text{Sin}[3\,(e+f\,x)]-a\,b^6\,c^9\,(e+f\,x)\,\text{Sin}[3\,(e+f\,x)]-$$

$a^4 b^3 c^8 d (e+f x) \text{Sin}[3 (e+f x)] - 5 a^2 b^5 c^8 d (e+f x) \text{Sin}[3 (e+f x)] - 3 a^5 b^2 c^7 d^2 (e+f x) \text{Sin}[3 (e+f x)] +$
$5 a^3 b^4 c^7 d^2 (e+f x) \text{Sin}[3 (e+f x)] + 4 a b^6 c^7 d^2 (e+f x) \text{Sin}[3 (e+f x)] + 5 a^6 b c^6 d^3 (e+f x) \text{Sin}[3 (e+f x)] +$
$19 a^4 b^3 c^6 d^3 (e+f x) \text{Sin}[3 (e+f x)] + 2 a^2 b^5 c^6 d^3 (e+f x) \text{Sin}[3 (e+f x)] - 2 a^7 c^5 d^4 (e+f x) \text{Sin}[3 (e+f x)] -$
$22 a^5 b^2 c^5 d^4 (e+f x) \text{Sin}[3 (e+f x)] - 23 a^3 b^4 c^5 d^4 (e+f x) \text{Sin}[3 (e+f x)] - 3 a b^6 c^5 d^4 (e+f x) \text{Sin}[3 (e+f x)] -$
$2 a^6 b c^4 d^5 (e+f x) \text{Sin}[3 (e+f x)] + 17 a^4 b^3 c^4 d^5 (e+f x) \text{Sin}[3 (e+f x)] + 7 a^2 b^5 c^4 d^5 (e+f x) \text{Sin}[3 (e+f x)] +$
$6 a^7 c^3 d^6 (e+f x) \text{Sin}[3 (e+f x)] + 7 a^5 b^2 c^3 d^6 (e+f x) \text{Sin}[3 (e+f x)] - 3 a^3 b^4 c^3 d^6 (e+f x) \text{Sin}[3 (e+f x)] -$
$7 a^6 b c^2 d^7 (e+f x) \text{Sin}[3 (e+f x)] - 3 a^4 b^3 c^2 d^7 (e+f x) \text{Sin}[3 (e+f x)] + 2 a^5 b^2 c d^8 (e+f x) \text{Sin}[3 (e+f x)])) /$
$\left(4 a (a - i b)^2 (a + i b)^2 c (c - i d)^3 (c + i d)^3 (-b c + a d)^3 f (a + b \text{Tan}[e+f x])^2 (c + d \text{Tan}[e+f x])^3\right)$

- **Problem 1232: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{c + d \text{Tan}[e+f x]}}{a + b \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 170 leaves, 11 steps):

$$\frac{\sqrt{c - i d} \text{ ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a + b) f} - \frac{\sqrt{c + i d} \text{ ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a - b) f} - \frac{2 \sqrt{b} \sqrt{b c - a d} \text{ ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{\left(a^2 + b^2\right) f}$$

Result (type 4, 177 870 leaves): Display of huge result suppressed!

- **Problem 1233: Humongous result has more than 200000 leaves.**

$$\int \frac{\sqrt{c + d \text{Tan}[e+f x]}}{(a + b \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 231 leaves, 12 steps):

$$-\frac{i \sqrt{c - i d} \text{ ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a - i b)^2 f} + \frac{i \sqrt{c + i d} \text{ ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a + i b)^2 f} -$$
$$\frac{\sqrt{b} \left(4 a b c - 3 a^2 d + b^2 d\right) \text{ ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{\left(a^2 + b^2\right)^2 \sqrt{b c - a d} f} - \frac{b \sqrt{c + d \text{Tan}[e+f x]}}{\left(a^2 + b^2\right) f (a + b \text{Tan}[e+f x])}$$

Result (type ?, 267 003 leaves): Display of huge result suppressed!

- **Problem 1234: Humongous result has more than 200000 leaves.**

$$\int \frac{\sqrt{c + d \text{Tan}[e+f x]}}{(a + b \text{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 342 leaves, 13 steps):

$$-\frac{\sqrt{c-i d}\ \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b)^3 f}+\frac{\sqrt{c+i d}\ \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a-b)^3 f}+$$

$$\frac{\sqrt{b}\left(40 a^3 b c d-24 a b^3 c d-15 a^4 d^2-6 a^2 b^2\left(4 c^2-3 d^2\right)+b^4\left(8 c^2+d^2\right)\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{4\left(a^2+b^2\right)^3(b c-a d)^{3/2} f}-$$

$$\frac{b \sqrt{c+d \text{Tan}[e+f x]}}{2\left(a^2+b^2\right) f(a+b \text{Tan}[e+f x])^2}-\frac{b\left(8 a b c-7 a^2 d+b^2 d\right) \sqrt{c+d \text{Tan}[e+f x]}}{4\left(a^2+b^2\right)^2(b c-a d) f(a+b \text{Tan}[e+f x])}$$

Result (type ?, 605 806 leaves) : Display of huge result suppressed!

Problem 1235: Result more than twice size of optimal antiderivative.

$$\int(a+b \text{Tan}[e+f x])^3(c+d \text{Tan}[e+f x])^{3/2} dx$$

Optimal (type 3, 256 leaves, 11 steps) :

$$\frac{(i a+b)^3(c-i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}-\frac{(i a-b)^3(c+i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+$$

$$\frac{2\left(3 a^2 b c-b^3 c+a^3 d-3 a b^2 d\right) \sqrt{c+d \text{Tan}[e+f x]}}{f}+\frac{2 b\left(3 a^2-b^2\right)(c+d \text{Tan}[e+f x])^{3/2}}{3 f}-$$

$$\frac{4 b^2(b c-8 a d)(c+d \text{Tan}[e+f x])^{5/2}}{35 d^2 f}+\frac{2 b^2(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^{5/2}}{7 d f}$$

Result (type 3, 666 leaves) :

$$-\left(i\left(a^3 c^2-3 a b^2 c^2-6 a^2 b c d+2 b^3 c d-a^3 d^2+3 a b^2 d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+f x]^5\right.$$

$$\left.(a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right)\Big/\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)-$$

$$\left(\left(3 a^2 b c^2-b^3 c^2+2 a^3 c d-6 a b^2 c d-3 a^2 b d^2+b^3 d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$

$$\left.\text{Cos}[e+f x]^5 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right)\Big/$$

$$\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\left(\text{Cos}[e+f x]^4 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^{3/2}\right.$$

$$\left(\frac{2\left(-6 b^3 c^3+63 a b^2 c^2 d+420 a^2 b c d^2-164 b^3 c d^2+105 a^3 d^3-378 a b^2 d^3\right)}{105 d^2}+\frac{2}{35} b^2 (8 b c+21 a d) \text{Sec}[e+f x]^2-1/(105 d) 2 \text{Sec}[e+f x]\right.$$

$$\left.\left.\left(-3 b^3 c^2 \text{Sin}[e+f x]-126 a b^2 c d \text{Sin}[e+f x]-105 a^2 b d^2 \text{Sin}[e+f x]+50 b^3 d^2 \text{Sin}[e+f x]\right)+\frac{2}{7} b^3 d \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)\right)\Big/$$

$$\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right)$$

- **Problem 1236: Result more than twice size of optimal antiderivative.**

$$\int (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^{3/2}\, dx$$

Optimal (type 3, 195 leaves, 10 steps):

$$-\frac{i (a-i b)^2 (c-i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}+\frac{i (a+i b)^2 (c+i d)^{3/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+$$

$$\frac{2\left(2 a b c+a^2 d-b^2 d\right) \sqrt{c+d \text{Tan}[e+f x]}}{f}+\frac{4 a b (c+d \text{Tan}[e+f x])^{3/2}}{3 f}+\frac{2 b^2 (c+d \text{Tan}[e+f x])^{5/2}}{5 d f}$$

Result (type 3, 543 leaves):

$$\left(\text{Cos}[e+fx]^3\left(\frac{2\left(3b^2c^2+40abcd+15a^2d^2-18b^2d^2\right)}{15d}+\frac{2}{5}b^2d\,\text{Sec}[e+fx]^2+\frac{4}{15}\text{Sec}[e+fx]\left(3b^2c\,\text{Sin}[e+fx]+5abd\,\text{Sin}[e+fx]\right)\right)\right.$$
$$\left.(a+b\,\text{Tan}[e+fx])^2(c+d\,\text{Tan}[e+fx])^{3/2}\right)\Big/\left(f\,(a\,\text{Cos}[e+fx]+b\,\text{Sin}[e+fx])^2(c\,\text{Cos}[e+fx]+d\,\text{Sin}[e+fx])\right)-$$
$$\left(i\left(a^2c^2-b^2c^2-4abcd-a^2d^2+b^2d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+fx]^4\right.$$
$$\left.(a+b\,\text{Tan}[e+fx])^2(c+d\,\text{Tan}[e+fx])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+fx]+b\,\text{Sin}[e+fx])^2(c\,\text{Cos}[e+fx]+d\,\text{Sin}[e+fx])^2\right)-$$
$$\left(\left(2abc^2+2a^2cd-2b^2cd-2abd^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+fx]^4\right.$$
$$\left.(a+b\,\text{Tan}[e+fx])^2(c+d\,\text{Tan}[e+fx])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+fx]+b\,\text{Sin}[e+fx])^2(c\,\text{Cos}[e+fx]+d\,\text{Sin}[e+fx])^2\right)$$

Problem 1237: Result more than twice size of optimal antiderivative.

$$\int(a+b\,\text{Tan}[e+fx])\,(c+d\,\text{Tan}[e+fx])^{3/2}\,dx$$

Optimal (type 3, 150 leaves, 9 steps):

$$-\frac{(i a+b)\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-i d}}\right]}{f}+$$
$$\frac{(i a-b)\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+i d}}\right]}{f}+\frac{2\,(bc+ad)\,\sqrt{c+d\,\text{Tan}[e+fx]}}{f}+\frac{2b\,(c+d\,\text{Tan}[e+fx])^{3/2}}{3f}$$

Result (type 3, 442 leaves):

$$-\left(i\left(a c^2-2 b c d-a d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+f x]^3\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)-$$
$$\left(\left(b c^2+2 a c d-b d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\text{Cos}[e+f x]^3\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)+$$
$$\frac{\text{Cos}[e+f x]^2\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{3/2}\left(\frac{2}{3}\,(4 b c+3 a d)+\frac{2}{3}\,b d\,\text{Tan}[e+f x]\right)}{f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}$$

- **Problem 1238: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{3/2}}{a+b\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 170 leaves, 11 steps):

$$\frac{(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b)\,f}-\frac{(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a-b)\,f}-\frac{2\,(b c-a d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{\sqrt{b}\,\left(a^2+b^2\right)\,f}$$

Result (type ?, 302 345 leaves): Display of huge result suppressed!

- **Problem 1239: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{3/2}}{(a+b\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 239 leaves, 12 steps):

$$-\frac{i\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a-i b)^2\,f}+\frac{i\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b)^2\,f}-$$
$$\frac{\sqrt{b c-a d}\,\left(4 a b c-a^2 d+3 b^2 d\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{\sqrt{b}\,\left(a^2+b^2\right)^2\,f}-\frac{(b c-a d)\,\sqrt{c+d\,\text{Tan}[e+f x]}}{\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f x])}$$

Result (type ?, 421 251 leaves): Display of huge result suppressed!

- **Problem 1240: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{3/2}}{(a+b\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 341 leaves, 13 steps):

$$-\frac{(c-i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b)^3 f}+\frac{(c+i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a-b)^3 f}+$$

$$\frac{\left(24 a^3 b c d-40 a b^3 c d-3 a^4 d^2-2 a^2 b^2 \left(12 c^2-13 d^2\right)+b^4 \left(8 c^2-3 d^2\right)\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{4 \sqrt{b} \left(a^2+b^2\right)^3 \sqrt{b c-a d} f}-$$

$$\frac{(b c-a d) \sqrt{c+d \operatorname{Tan}[e+f x]}}{2 \left(a^2+b^2\right) f (a+b \operatorname{Tan}[e+f x])^2}-\frac{\left(8 a b c-3 a^2 d+5 b^2 d\right) \sqrt{c+d \operatorname{Tan}[e+f x]}}{4 \left(a^2+b^2\right)^2 f (a+b \operatorname{Tan}[e+f x])}$$

Result (type ?, 579 734 leaves): Display of huge result suppressed!

Problem 1241: Result more than twice size of optimal antiderivative.

$$\int (a+b \operatorname{Tan}[e+f x])^3 (c+d \operatorname{Tan}[e+f x])^{5/2} \, dx$$

Optimal (type 3, 322 leaves, 12 steps):

$$\frac{(i a+b)^3 (c-i d)^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}-\frac{(i a-b)^3 (c+i d)^{5/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+$$

$$\frac{2 \left(2 a^3 c d-6 a b^2 c d+3 a^2 b \left(c^2-d^2\right)-b^3 \left(c^2-d^2\right)\right) \sqrt{c+d \operatorname{Tan}[e+f x]}}{f}+\frac{2 \left(3 a^2 b c-b^3 c+a^3 d-3 a b^2 d\right) (c+d \operatorname{Tan}[e+f x])^{3/2}}{3 f}+$$

$$\frac{2 b \left(3 a^2-b^2\right) (c+d \operatorname{Tan}[e+f x])^{5/2}}{5 f}-\frac{4 b^2 (b c-10 a d) (c+d \operatorname{Tan}[e+f x])^{7/2}}{63 d^2 f}+\frac{2 b^2 (a+b \operatorname{Tan}[e+f x]) (c+d \operatorname{Tan}[e+f x])^{7/2}}{9 d f}$$

Result (type 3, 826 leaves):

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2}$$

$$\text{Cos}[e+f\,x]^5\left(-\frac{1}{315\,d^2}2\,\left(10\,b^3\,c^4-135\,a\,b^2\,c^3\,d-1449\,a^2\,b\,c^2\,d^2+558\,b^3\,c^2\,d^2-735\,a^3\,c\,d^3+2610\,a\,b^2\,c\,d^3+1134\,a^2\,b\,d^4-413\,b^3\,d^4\right)+\right.$$

$$\frac{2}{315}\,b\,\left(75\,b^2\,c^2+405\,a\,b\,c\,d+189\,a^2\,d^2-133\,b^2\,d^2\right)\,\text{Sec}[e+f\,x]^2+\frac{2}{9}\,b^3\,d^2\,\text{Sec}[e+f\,x]^4+$$

$$\frac{2}{63}\,\text{Sec}[e+f\,x]^3\,\left(19\,b^3\,c\,d\,\text{Sin}[e+f\,x]+27\,a\,b^2\,d^2\,\text{Sin}[e+f\,x]\right)-\frac{1}{315\,d}2\,\text{Sec}[e+f\,x]\,\left(-5\,b^3\,c^3\,\text{Sin}[e+f\,x]-\right.$$

$$\left.\left.405\,a\,b^2\,c^2\,d\,\text{Sin}[e+f\,x]-693\,a^2\,b\,c\,d^2\,\text{Sin}[e+f\,x]+326\,b^3\,c\,d^2\,\text{Sin}[e+f\,x]-105\,a^3\,d^3\,\text{Sin}[e+f\,x]+450\,a\,b^2\,d^3\,\text{Sin}[e+f\,x]\right)\right)$$

$$(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{5/2}-\left(\text{i}\,\left(a^3\,c^3-3\,a\,b^2\,c^3-9\,a^2\,b\,c^2\,d+3\,b^3\,c^2\,d-3\,a^3\,c\,d^2+9\,a\,b^2\,c\,d^2+3\,a^2\,b\,d^3-b^3\,d^3\right)\right.$$

$$\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\text{i}\,d}}\right]}{\sqrt{c-\text{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\text{i}\,d}}\right]}{\sqrt{c+\text{i}\,d}}\right)\text{Cos}[e+f\,x]^6\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\right)-$$

$$\left(\left(3\,a^2\,b\,c^3-b^3\,c^3+3\,a^3\,c^2\,d-9\,a\,b^2\,c^2\,d-9\,a^2\,b\,c\,d^2+3\,b^3\,c\,d^2-a^3\,d^3+3\,a\,b^2\,d^3\right)\right.$$

$$\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\text{i}\,d}}\right]}{\sqrt{c-\text{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\text{i}\,d}}\right]}{\sqrt{c+\text{i}\,d}}\right)\text{Cos}[e+f\,x]^6\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^3\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\right)$$

- **Problem 1242: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 231 leaves, 11 steps):

$$-\frac{\text{i}\,(a-\text{i}\,b)^2\,(c-\text{i}\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\text{i}\,d}}\right]}{f}+\frac{\text{i}\,(a+\text{i}\,b)^2\,(c+\text{i}\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\text{i}\,d}}\right]}{f}+\frac{4\,(b\,c+a\,d)\,(a\,c-b\,d)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{f}+$$

$$\frac{2\,\left(2\,a\,b\,c+a^2\,d-b^2\,d\right)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{4\,a\,b\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{5\,f}+\frac{2\,b^2\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{7\,d\,f}$$

Result (type 3, 648 leaves):

$$-\left(\mathrm{i}\left(a^2 c^3-b^2 c^3-6 a b c^2 d-3 a^2 c d^2+3 b^2 c d^2+2 a b d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i} d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i} d}}\right)\text{Cos}[e+f x]^5\right.$$

$$\left.(a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\right)\Big/\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\right)-$$

$$\left(\left(2 a b c^3+3 a^2 c^2 d-3 b^2 c^2 d-6 a b c d^2-a^2 d^3+b^2 d^3\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i} d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i} d}}\right)\text{Cos}[e+f x]^5\right.$$

$$\left.(a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\right)\Big/\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\right)+$$

$$\left(\text{Cos}[e+f x]^4\,(a+b\,\text{Tan}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^{5/2}\left(\frac{2\left(15 b^2 c^3+322 a b c^2 d+245 a^2 c d^2-290 b^2 c d^2-252 a b d^3\right)}{105 d}+\frac{2}{35} b d\,(15 b c+14 a d)\right.\right.$$

$$\text{Sec}[e+f x]^2+\frac{2}{105}\,\text{Sec}[e+f x]\,\left(45 b^2 c^2\,\text{Sin}[e+f x]+154 a b c d\,\text{Sin}[e+f x]+35 a^2 d^2\,\text{Sin}[e+f x]-50 b^2 d^2\,\text{Sin}[e+f x]\right)+$$

$$\left.\left.\frac{2}{7} b^2 d^2\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\right)\Big/\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)$$

- **Problem 1243: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{5/2}\,dx$$

Optimal (type 3, 188 leaves, 10 steps):

$$-\frac{(\mathrm{i} a+b)\,(c-\mathrm{i} d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{f}+\frac{(\mathrm{i} a-b)\,(c+\mathrm{i} d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{f}+$$

$$\frac{2\left(2 a c d+b\left(c^2-d^2\right)\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{f}+\frac{2\,(b c+a d)\,(c+d\,\text{Tan}[e+f x])^{3/2}}{3 f}+\frac{2 b\,(c+d\,\text{Tan}[e+f x])^{5/2}}{5 f}$$

Result (type 3, 506 leaves):

$$\left(\text{Cos}[e+f x]^3 \left(\frac{2}{15} \left(23 b c^2+35 a c d-18 b d^2\right)+\frac{2}{5} b d^2 \text{Sec}[e+f x]^2+\frac{2}{15} \text{Sec}[e+f x] \left(11 b c d \text{Sin}[e+f x]+5 a d^2 \text{Sin}[e+f x]\right)\right) (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^{5/2}\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) - \left(i \left(a c^3-3 b c^2 d-3 a c d^2+b d^3\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^4 (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^3\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\right) - \left(\left(b c^3+3 a c^2 d-3 b c d^2-a d^3\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \text{Cos}[e+f x]^4 (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^3\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\right)$$

■ Problem 1244: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d \text{Tan}[e+f x])^{5/2}}{a+b \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 195 leaves, 12 steps):

$$\frac{(c-i d)^{5/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b) f}-\frac{(c+i d)^{5/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a-b) f}-\frac{2 (b c-a d)^{5/2} \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{b^{3/2} \left(a^2+b^2\right) f}+\frac{2 d^2 \sqrt{c+d \text{Tan}[e+f x]}}{b f}$$

Result (type ?, 354 997 leaves): Display of huge result suppressed!

■ Problem 1245: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d \text{Tan}[e+f x])^{5/2}}{(a+b \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 243 leaves, 12 steps):

$$-\frac{i (c-i d)^{5/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a-i b)^2 f}+\frac{i (c+i d)^{5/2} \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b)^2 f}-\frac{(b c-a d)^{3/2} \left(4 a b c+a^2 d+5 b^2 d\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{b^{3/2} \left(a^2+b^2\right)^2 f}-\frac{(b c-a d)^2 \sqrt{c+d \text{Tan}[e+f x]}}{b \left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])}$$

Result (type ?, 576 856 leaves): Display of huge result suppressed!

Problem 1246: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}}{(a+b\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 355 leaves, 13 steps):

$$-\frac{(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(i\,a+b)^3\,f}+\frac{(c+i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(i\,a-b)^3\,f}+\frac{1}{4\,b^{3/2}\,\left(a^2+b^2\right)^3\,f}$$

$$\sqrt{b\,c-a\,d}\,\left(8\,a^3\,b\,c\,d-56\,a\,b^3\,c\,d+a^4\,d^2+b^4\,\left(8\,c^2-15\,d^2\right)-6\,a^2\,b^2\,\left(4\,c^2-3\,d^2\right)\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]-$$

$$\frac{(b\,c-a\,d)^2\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^2}-\frac{(b\,c-a\,d)\,\left(8\,a\,b\,c+a^2\,d+9\,b^2\,d\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{4\,b\,\left(a^2+b^2\right)^2\,f\,(a+b\,\text{Tan}[e+f\,x])}$$

Result (type ?, 783 192 leaves): Display of huge result suppressed!

Problem 1251: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b\,\text{Tan}[e+f\,x])\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 170 leaves, 11 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(i\,a+b)\,\sqrt{c-i\,d}\,f}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(i\,a-b)\,\sqrt{c+i\,d}\,f}-\frac{2\,b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)\,\sqrt{b\,c-a\,d}\,f}$$

Result (type 4, 11 323 leaves):

$$-\left(\left(4\left((-i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\right],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.\right.$$

$$(i\,a+b)\,\text{EllipticPi}\left[\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\right)}}\right],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\text{Sec}[e+f x]^{3/2}\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}$$

$$\left(\frac{\sqrt{\text{Sec}[e+f x]}}{2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}}+\frac{\text{Cos}[2\,(e+f x)]\,\sqrt{\text{Sec}[e+f x]}}{2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left.\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right)\Big/$$

$$\left(\left(a^2+b^2\right)f\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{c+2\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\left(\left(4\left((-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}$$

$$\left.\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\sqrt{\frac{c+2d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right)-$$

$$\left(2\left((-i a+b)\,\text{EllipticPi}\left[-\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.$$

$$(i a+b)\,\text{EllipticPi}\left[\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\,\Bigg(\text{EllipticPi}\Big[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]+$$

$$\text{EllipticPi}\Big[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]\Bigg)\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\Bigg)\Bigg/$$

$$\Bigg(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{c+2\,d\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\Bigg)-$$

$$\Bigg(2\,\Bigg((-i\,a+b)\,\text{EllipticPi}\Big[-\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]+$$

$$(i\,a+b)\,\text{EllipticPi}\Big[\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\ \text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\Bigg)$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\left.\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\ \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{c+2\,d\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right)+$$

$$\left(2\left((-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\ \frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}$$

$$\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}$$

$$\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}\right)^{3/2}\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{c+2d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right)-$$

$$\left(2\left((-\mathrm{i}\,a+b)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}$$

$$\left.\left(-\frac{c\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{2\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\left(d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{2\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)^2}\right)\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{c+2\,d\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2}}\right)-$$

$$\left(2\left((-i\,a+b)\,\text{EllipticPi}\left[-\frac{i\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.$$

$$(\mathbb{i}\,a+b)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\text{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\,\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\text{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\,\text{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}$$

$$\left(\frac{c\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\;\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{c+2\,d\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\right)-$$

$$\Bigg(2\,\Bigg((-\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\,\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]+$$

$$(\mathrm{i}\,a+b)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\,\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]-$$

$$b\,\Bigg(\text{EllipticPi}\Big[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]+$$

$$\text{EllipticPi}\Big[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\Big],\,\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\Big]\Bigg)\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right.$$

$$\left.\sqrt{\frac{c+2\,d\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\right)+$$

$$\left(2\left((-\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.\right.$$

$$(\mathrm{i}\,a+b)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(c+d+\sqrt{c^2+d^2}\right)}{-c+d+\sqrt{c^2+d^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]-$$

$$b\left(\mathrm{EllipticPi}\left[\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]+\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right],\frac{c+\sqrt{c^2+d^2}}{c-\sqrt{c^2+d^2}}\right]\right)\right)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}$$

$$\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}\ \left(\frac{d\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2-c\,\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(c+2\,d\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(\frac{c+2\,d\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{3/2}\right)-$$

$$\left(4\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\sqrt{\frac{d-\sqrt{c^2+d^2}-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(-c-d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\right.$$

$$\sqrt{-\frac{d+\sqrt{c^2+d^2}-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}}$$

$$\left.\left(\left((i\,a+b)\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)^2}\right)\right)\right)\right.\Big/$$

$$\left(2\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}}\ \left(1-\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\;\sqrt{1-\frac{\left(c+\sqrt{c^2+d^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c-\sqrt{c^2+d^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\Bigg)+$$

$$\left((-\mathrm{i}\,a+b)\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\frac{\mathrm{i}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\;\sqrt{1-\frac{\left(c+\sqrt{c^2+d^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c-\sqrt{c^2+d^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)-$$

$$b\left(\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/\right.$$

$$\left(2\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1-\frac{\left(a-b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\;\sqrt{1-\frac{\left(c+\sqrt{c^2+d^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c-\sqrt{c^2+d^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\right)+$$

$$\left(\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{2\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)^2}\right)\Big/$$

$$\Bigg(2\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}\right)$$

$$\sqrt{1-\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\sqrt{1-\frac{\left(c+\sqrt{c^2+d^2}\right)\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c-\sqrt{c^2+d^2}\right)\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(\left(a^2+b^2\right)\sqrt{\frac{\left(-c+d+\sqrt{c^2+d^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}{\left(c+d+\sqrt{c^2+d^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\right)}}\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{c+2\,d\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]-c\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2}}\Bigg)\Bigg)\,(a+b$$

$$\mathrm{Tan}[e+f x])\sqrt{c+d\,\mathrm{Tan}[e+f x]}\Bigg)\Bigg)$$

- **Problem 1252: Humongous result has more than 200000 leaves.**

$$\int\frac{1}{(a+b\,\mathrm{Tan}[e+f x])^2\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 244 leaves, 12 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\sqrt{c-i\,d}\;f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\sqrt{c+i\,d}\;f}-$$

$$\frac{b^{3/2}\left(4\,a\,b\,c-5\,a^2\,d-b^2\,d\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)^2(b\,c-a\,d)^{3/2}\,f}-\frac{b^2\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\left(a^2+b^2\right)(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f x])}$$

Result (type ?, 273 220 leaves): Display of huge result suppressed!

- **Problem 1253: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f x])^4}{(c+d\,\mathrm{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 317 leaves, 10 steps):

$$-\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^4\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{3/2}\,f}+\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^4\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{(c+\mathrm{i}\,d)^{3/2}\,f}-$$

$$\frac{2\,(b\,c-a\,d)^2\,(a+b\,\text{Tan}[e+f\,x])^2}{d\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-\frac{2\,b\,\left(15\,a^2\,b\,c\,d^2-6\,a^3\,d^3-12\,a\,b^2\,d\,\left(2\,c^2+d^2\right)+b^3\,\left(8\,c^3+5\,c\,d^2\right)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,d^3\,\left(c^2+d^2\right)\,f}-$$

$$\frac{2\,b^2\,\left(3\,a\,d\,(2\,b\,c-a\,d)-b^2\,\left(4\,c^2+d^2\right)\right)\,\text{Tan}[e+f\,x]\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,d^2\,\left(c^2+d^2\right)\,f}$$

Result (type 3, 742 leaves) :

$$\Bigg(\text{Cos}[e+f\,x]^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2$$

$$(a+b\,\text{Tan}[e+f\,x])^4\,\left(-\frac{2\,\left(8\,b^4\,c^4-24\,a\,b^3\,c^3\,d+18\,a^2\,b^2\,c^2\,d^2+5\,b^4\,c^2\,d^2-12\,a^3\,b\,c\,d^3-12\,a\,b^3\,c\,d^3+3\,a^4\,d^4\right)}{3\,c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,d^3}+\right.$$

$$\left(2\,\left(b^4\,c^4\,\text{Sin}[e+f\,x]-4\,a\,b^3\,c^3\,d\,\text{Sin}[e+f\,x]+6\,a^2\,b^2\,c^2\,d^2\,\text{Sin}[e+f\,x]-4\,a^3\,b\,c\,d^3\,\text{Sin}[e+f\,x]+a^4\,d^4\,\text{Sin}[e+f\,x]\right)\right)\Big/$$

$$\left.\left.\left(c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,d^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)+\frac{2\,b^4\,\text{Tan}[e+f\,x]}{3\,d^2}\right)\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^4\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)+\Bigg((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])^4$$

$$\left(-\left(\mathrm{i}\,\left(a^4\,c-6\,a^2\,b^2\,c+b^4\,c+4\,a^3\,b\,d-4\,a\,b^3\,d\right)\,\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/\right.$$

$$\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)-\Bigg(\left(4\,a^3\,b\,c-4\,a\,b^3\,c-a^4\,d+6\,a^2\,b^2\,d-b^4\,d\right)$$

$$\left.\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\right)\right)\Big/$$

$$\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,f\,\text{Sec}[e+f\,x]^{5/2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^4\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)$$

■ **Problem 1254: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^3}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 216 leaves, 9 steps):

$$\frac{(i\,a+b)^3\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{3/2}\,f}-\frac{(i\,a-b)^3\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(c+i\,d)^{3/2}\,f}-$$

$$\frac{2\,(b\,c-a\,d)^2\,(a+b\,\text{Tan}[e+f\,x])}{d\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-\frac{2\,b\,\left(a\,d\,(2\,b\,c-a\,d)-b^2\,\left(2\,c^2+d^2\right)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{d^2\,\left(c^2+d^2\right)\,f}$$

Result (type 3, 659 leaves):

$$\left(\text{Cos}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\left(\frac{2\left(2 b^3 c^3-3 a b^2 c^2 d+3 a^2 b c d^2+b^3 c d^2-a^3 d^3\right)}{c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,d^2}-\right.\right.$$

$$\left.\left.\frac{2\left(b^3 c^3\,\text{Sin}[e+f x]-3 a b^2 c^2 d\,\text{Sin}[e+f x]+3 a^2 b c d^2\,\text{Sin}[e+f x]-a^3 d^3\,\text{Sin}[e+f x]\right)}{c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,d\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}\right)(a+b\,\text{Tan}[e+f x])^3\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^{3/2}\right)+\left((c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^{3/2}\,(a+b\,\text{Tan}[e+f x])^3\right.$$

$$\left(-\left(\mathrm{i}\left(a^3 c-3 a b^2 c+3 a^2 b d-b^3 d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]}\right.\right.$$

$$\left.\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}\right)-\frac{\left(3 a^2 b c-b^3 c-a^3 d+3 a b^2 d\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}}\left.\right)\left.\right)\Big/$$

$$\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,f\,\text{Sec}[e+f x]^{3/2}\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^{3/2}\right)$$

- **Problem 1255: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[e+f x])^2}{(c+d\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 150 leaves, 8 steps):

$$-\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{3/2}\,f}+\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{(c+\mathrm{i}\,d)^{3/2}\,f}-\frac{2\,(b\,c-a\,d)^2}{d\left(c^2+d^2\right)f\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 3, 575 leaves):

$$\left((c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^2\left(-\frac{2(-b c+a d)^2}{c(c-i d)(c+i d) d}+\frac{2\left(b^2 c^2 \operatorname{Sin}[e+f x]-2 a b c d \operatorname{Sin}[e+f x]+a^2 d^2 \operatorname{Sin}[e+f x]\right)}{c(c-i d)(c+i d)(c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])}\right)(a+b \operatorname{Tan}[e+f x])^2\right) \Big/ \left(f(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^{3/2}\right)+$$

$$\left((c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x])^{3/2}(a+b \operatorname{Tan}[e+f x])^2\left(-\frac{i\left(a^2 c-b^2 c+2 a b d\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{\operatorname{Sec}[e+f x]}\sqrt{c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]}}-\frac{\left(2 a b c-a^2 d+b^2 d\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{\operatorname{Sec}[e+f x]}\sqrt{c \operatorname{Cos}[e+f x]+d \operatorname{Sin}[e+f x]}}\right)\right) \Big/$$

$$\left((c-i d)(c+i d) f \sqrt{\operatorname{Sec}[e+f x]}(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^2(c+d \operatorname{Tan}[e+f x])^{3/2}\right)$$

- **Problem 1256: Result more than twice size of optimal antiderivative.**

$$\int \frac{a+b \operatorname{Tan}[e+f x]}{(c+d \operatorname{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 138 leaves, 8 steps):

$$-\frac{(i a+b) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{3/2} f}+\frac{(i a-b) \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{3/2} f}+\frac{2(b c-a d)}{\left(c^2+d^2\right) f \sqrt{c+d \operatorname{Tan}[e+f x]}}$$

Result (type 3, 537 leaves):

$$\left(\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\left(-\frac{2\,(-b\,c+a\,d)}{c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)}-\frac{2\,\left(b\,c\,d\,\mathrm{Sin}[e+f\,x]-a\,d^2\,\mathrm{Sin}[e+f\,x]\right)}{c\,(c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\right)(a+b\,\mathrm{Tan}[e+f\,x])\right)\Big/$$

$$\left(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\right)+\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{3/2}\right.$$

$$(a+b\,\mathrm{Tan}[e+f\,x])\left(-\frac{\mathrm{i}\,(a\,c+b\,d)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}}-\right.$$

$$\left.\left.\frac{(b\,c-a\,d)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}}\right)\right)\Big/$$

$$\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\right)$$

- **Problem 1257: Humongous result has more than 200000 leaves.**

$$\int\frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 211 leaves, 12 steps):

$$\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(\mathrm{i}\,a+b)\,(c-\mathrm{i}\,d)^{3/2}\,f}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{(\mathrm{i}\,a-b)\,(c+\mathrm{i}\,d)^{3/2}\,f}-\frac{2\,b^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)\,(b\,c-a\,d)^{3/2}\,f}+\frac{2\,d^2}{(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 229 690 leaves): Display of huge result suppressed!

- **Problem 1258: Humongous result has more than 200000 leaves.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 314 leaves, 13 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,(c-i\,d)^{3/2}\,f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,(c+i\,d)^{3/2}\,f}-\frac{b^{5/2}\,\left(4\,a\,b\,c-7\,a^2\,d-3\,b^2\,d\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)^2\,(b\,c-a\,d)^{5/2}\,f}-$$
$$\frac{d\,\left(2\,a^2\,d^2+b^2\,\left(c^2+3\,d^2\right)\right)}{\left(a^2+b^2\right)\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}-\frac{b^2}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 591 590 leaves): Display of huge result suppressed!

- **Problem 1259: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^4}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 290 leaves, 10 steps):

$$-\frac{i\,(a-i\,b)^4\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{i\,(a+i\,b)^4\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(c+i\,d)^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f\,x])^2}{3\,d\,\left(c^2+d^2\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+$$
$$\frac{4\,(b\,c-a\,d)^3\,\left(2\,b\,c^2+3\,a\,c\,d+5\,b\,d^2\right)}{3\,d^3\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}-\frac{2\,b^2\,\left(a\,d\,(2\,b\,c-a\,d)-b^2\,\left(4\,c^2+3\,d^2\right)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,d^3\,\left(c^2+d^2\right)\,f}$$

Result (type 3, 947 leaves):

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,\mathrm{Cos}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3$$

$$\Bigg(-\Big(2\,\big(-8\,b^4\,c^5+8\,a\,b^3\,c^4\,d+6\,a^2\,b^2\,c^3\,d^2-18\,b^4\,c^3\,d^2-16\,a^3\,b\,c^2\,d^3+36\,a\,b^3\,c^2\,d^3+7\,a^4\,c\,d^4-36\,a^2\,b^2\,c\,d^4-3\,b^4\,c\,d^4+12\,a^3\,b\,d^5\big)\Big)\Big/$$

$$\left(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^3\right)-\frac{2\,(b\,c-a\,d)^4}{3\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}-$$

$$\Big(8\,\big(b^4\,c^5\,\mathrm{Sin}[e+f\,x]-a\,b^3\,c^4\,d\,\mathrm{Sin}[e+f\,x]-3\,a^2\,b^2\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]+3\,b^4\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]+5\,a^3\,b\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-$$
$$9\,a\,b^3\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-2\,a^4\,c\,d^4\,\mathrm{Sin}[e+f\,x]+9\,a^2\,b^2\,c\,d^4\,\mathrm{Sin}[e+f\,x]-3\,a^3\,b\,d^5\,\mathrm{Sin}[e+f\,x]\big)\Big)\Big/$$

$$\left(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\right)\Bigg)\,(a+b\,\mathrm{Tan}[e+f\,x])^4+$$

$$\Bigg((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f\,x])^4\,\Bigg(-\Bigg(\mathrm{i}\,\left(a^4\,c^2-6\,a^2\,b^2\,c^2+b^4\,c^2+8\,a^3\,b\,c\,d-8\,a\,b^3\,c\,d-a^4\,d^2+6\,a^2\,b^2\,d^2-b^4\,d^2\right)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)-$$

$$\Bigg(\left(4\,a^3\,b\,c^2-4\,a\,b^3\,c^2-2\,a^4\,c\,d+12\,a^2\,b^2\,c\,d-2\,b^4\,c\,d-4\,a^3\,b\,d^2+4\,a\,b^3\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)$$

$$\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Big/$$

$$\left((c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,f\,\mathrm{Sec}[e+f\,x]^{3/2}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^4\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\right)$$

- **Problem 1260: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])^3}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 219 leaves, 9 steps):

$$\frac{(\mathrm{i}\,a+b)^3\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{5/2}\,f}-\frac{(\mathrm{i}\,a-b)^3\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{(c+\mathrm{i}\,d)^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f\,x])}{3\,d\,\left(c^2+d^2\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}-\frac{4\,(b\,c-a\,d)^2\,\left(3\,a\,c\,d+b\,\left(c^2+4\,d^2\right)\right)}{3\,d^2\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 787 leaves):

$$\left((c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\left(-\frac{2\,(b c-a d)^2\,(2 b c^2+7 a c d+9 b d^2)}{3 c\,(c-\mathrm{i} d)^2\,(c+\mathrm{i} d)^2\,d^2}+\frac{2\,(b c-a d)^3}{3\,(c-\mathrm{i} d)^2\,(c+\mathrm{i} d)^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2}+\left(2\left(b^3 c^4\,\text{Sin}[e+f x]+6 a b^2 c^3 d\,\text{Sin}[e+f x]-15 a^2 b c^2 d^2\,\text{Sin}[e+f x]+9 b^3 c^2 d^2\,\text{Sin}[e+f x]+8 a^3 c d^3\,\text{Sin}[e+f x]-18 a b^2 c d^3\,\text{Sin}[e+f x]+9 a^2 b d^4\,\text{Sin}[e+f x]\right)\right)\Big/\left(3 c\,(c-\mathrm{i} d)^2\,(c+\mathrm{i} d)^2\,d\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right)\right)(a+b\,\text{Tan}[e+f x])^3\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^{5/2}\right)+\left((c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^{5/2}\,(a+b\,\text{Tan}[e+f x])^3\right.$$

$$\left(-\left(\mathrm{i}\,(a^3 c^2-3 a b^2 c^2+6 a^2 b c d-2 b^3 c d-a^3 d^2+3 a b^2 d^2)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i} d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i} d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\right.$$

$$\left(\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}\right)-\left((3 a^2 b c^2-b^3 c^2-2 a^3 c d+6 a b^2 c d-3 a^2 b d^2+b^3 d^2)\right.$$

$$\left.\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i} d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i} d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}\right)\right)\right)\Big/$$

$$\left((c-\mathrm{i} d)^2\,(c+\mathrm{i} d)^2\,f\,\sqrt{\text{Sec}[e+f x]}\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^{5/2}\right)$$

- **Problem 1261: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[e+f x])^2}{(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 195 leaves, 9 steps) :

$$-\frac{\mathrm{i}\,(a-\mathrm{i} b)^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathrm{i} d}}\right]}{(c-\mathrm{i} d)^{5/2}\,f}+\frac{\mathrm{i}\,(a+\mathrm{i} b)^2\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathrm{i} d}}\right]}{(c+\mathrm{i} d)^{5/2}\,f}-\frac{2\,(b c-a d)^2}{3 d\,(c^2+d^2)\,f\,(c+d\,\text{Tan}[e+f x])^{3/2}}+\frac{4\,(b c-a d)\,(a c+b d)}{(c^2+d^2)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 3, 732 leaves) :

$$\left(\text{Sec}[e+f x] (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^3\right.$$

$$\left(-\frac{2 \left(b^2 c^3-8 a b c^2 d+7 a^2 c d^2-6 b^2 c d^2+6 a b d^3\right)}{3 c (c-i d)^2 (c+i d)^2 d}-\frac{2 d (b c-a d)^2}{3 (c-i d)^2 (c+i d)^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}+\right.$$

$$\left(4 \left(b^2 c^3 \text{Sin}[e+f x]-5 a b c^2 d \text{Sin}[e+f x]+4 a^2 c d^2 \text{Sin}[e+f x]-3 b^2 c d^2 \text{Sin}[e+f x]+3 a b d^3 \text{Sin}[e+f x]\right)\right) \Big/$$

$$\left.\left.\left(3 c (c-i d)^2 (c+i d)^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right)\right) (a+b \text{Tan}[e+f x])^2\right) \Big/$$

$$\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])^{5/2}\right)+\left(\sqrt{\text{Sec}[e+f x]} (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^{5/2} (a+b \text{Tan}[e+f x])^2\right.$$

$$\left(-\left(i \left(a^2 c^2-b^2 c^2+4 a b c d-a^2 d^2+b^2 d^2\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \sqrt{c+d \text{Tan}[e+f x]}\right) \Big/\right.$$

$$\left(\sqrt{\text{Sec}[e+f x]} \sqrt{c \text{Cos}[e+f x]+d \text{Sin}[e+f x]}\right)-\left(\left(2 a b c^2-2 a^2 c d+2 b^2 c d-2 a b d^2\right)\right.$$

$$\left.\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \sqrt{c+d \text{Tan}[e+f x]}\right) \Big/ \left(\sqrt{\text{Sec}[e+f x]} \sqrt{c \text{Cos}[e+f x]+d \text{Sin}[e+f x]}\right)\right)\right) \Big/$$

$$\left((c-i d)^2 (c+i d)^2 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])^{5/2}\right)$$

- **Problem 1262: Result more than twice size of optimal antiderivative.**

$$\int \frac{a+b \text{Tan}[e+f x]}{(c+d \text{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 186 leaves, 9 steps) :

$$-\frac{(i a+b) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{5/2} f}+\frac{(i a-b) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{5/2} f}+\frac{2 (b c-a d)}{3 \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^{3/2}}-\frac{2 \left(2 a c d-b \left(c^2-d^2\right)\right)}{\left(c^2+d^2\right)^2 f \sqrt{c+d \text{Tan}[e+f x]}}$$

Result (type 3, 640 leaves) :

$$\left(\text{Sec}[e+f x]^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\left(\frac{2\left(4 b c^2-7 a c d-3 b d^2\right)}{3 c\,(c-\mathbb{i}\,d)^2\,(c+\mathbb{i}\,d)^2}+\frac{2 d^2\,(b c-a d)}{3\,(c-\mathbb{i}\,d)^2\,(c+\mathbb{i}\,d)^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2}-\right.\right.$$

$$\left.\left.\frac{2\left(5 b c^2 d\,\text{Sin}[e+f x]-8 a c d^2\,\text{Sin}[e+f x]-3 b d^3\,\text{Sin}[e+f x]\right)}{3 c\,(c-\mathbb{i}\,d)^2\,(c+\mathbb{i}\,d)^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}\right)(a+b\,\text{Tan}[e+f x])\right)\Big/$$

$$\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{5/2}\right)+\left(\text{Sec}[e+f x]^{3/2}\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^{5/2}\right.$$

$$(a+b\,\text{Tan}[e+f x])\left(-\frac{\mathbb{i}\left(a c^2+2 b c d-a d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i}\,d}}\right]}{\sqrt{c-\mathbb{i}\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i}\,d}}\right]}{\sqrt{c+\mathbb{i}\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}}-\right.$$

$$\left.\left.\frac{\left(b c^2-2 a c d-b d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-\mathbb{i}\,d}}\right]}{\sqrt{c-\mathbb{i}\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+\mathbb{i}\,d}}\right]}{\sqrt{c+\mathbb{i}\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{\text{Sec}[e+f x]}\,\sqrt{c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]}}\right)\right)\Big/$$

$$\left((c-\mathbb{i}\,d)^2\,(c+\mathbb{i}\,d)^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{5/2}\right)$$

- **Problem 1263: Humongous result has more than 200000 leaves.**

$$\int\frac{1}{(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 272 leaves, 13 steps) :

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(i\,a+b)\,(c-i\,d)^{5/2}\,f}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(i\,a-b)\,(c+i\,d)^{5/2}\,f}-\frac{2\,b^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)\,(b\,c-a\,d)^{5/2}\,f}+$$
$$\frac{2\,d^2}{3\,(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}-\frac{2\,d^2\,\left(2\,a\,c\,d-b\,\left(3\,c^2+d^2\right)\right)}{(b\,c-a\,d)^2\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type ?, 411 521 leaves) : Display of huge result suppressed!

- **Problem 1264: Humongous result has more than 200000 leaves.**

$$\int\frac{1}{(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 425 leaves, 14 steps) :

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,(c-i\,d)^{5/2}\,f}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,(c+i\,d)^{5/2}\,f}-$$
$$\frac{b^{7/2}\,\left(4\,a\,b\,c-9\,a^2\,d-5\,b^2\,d\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)^2\,(b\,c-a\,d)^{7/2}\,f}-\frac{d\,\left(2\,a^2\,d^2+b^2\,\left(3\,c^2+5\,d^2\right)\right)}{3\,\left(a^2+b^2\right)\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}-$$
$$\frac{b^2}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}+\frac{d\,\left(4\,a^3\,c\,d^3+4\,a\,b^2\,c\,d^3-4\,a^2\,b\,d^2\,\left(2\,c^2+d^2\right)-b^3\,\left(c^4+10\,c^2\,d^2+5\,d^4\right)\right)}{\left(a^2+b^2\right)\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type ?, 961 458 leaves) : Display of huge result suppressed!

- **Problem 1265: Humongous result has more than 200000 leaves.**

$$\int(a+b\,\text{Tan}[e+f\,x])^{5/2}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 337 leaves, 14 steps) :

$$-\frac{i\,(a-i\,b)^{5/2}\,\sqrt{c-i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}+$$
$$\frac{i\,(a+i\,b)^{5/2}\,\sqrt{c+i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}+\frac{\sqrt{b}\,\left(10\,a\,b\,c\,d+15\,a^2\,d^2-b^2\,\left(c^2+8\,d^2\right)\right)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{4\,d^{3/2}\,f}-$$
$$\frac{b\,(b\,c-9\,a\,d)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{4\,d\,f}+\frac{b^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{2\,d\,f}$$

Result (type ?, 443 917 leaves) : Display of huge result suppressed!

- **Problem 1266: Humongous result has more than 200000 leaves.**

$$\int (a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 258 leaves, 13 steps):

$$-\frac{i\,(a-i\,b)^{3/2}\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{i\,(a+i\,b)^{3/2}\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{\sqrt{b}\,(b\,c+3\,a\,d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{d}\,f}+\frac{b\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}$$

Result (type ?, 349 177 leaves): Display of huge result suppressed!

- **Problem 1267: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 218 leaves, 11 steps):

$$-\frac{i\sqrt{a-i\,b}\,\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{i\sqrt{a+i\,b}\,\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{2\sqrt{b}\,\sqrt{d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}$$

Result (type 4, 177 263 leaves): Display of huge result suppressed!

- **Problem 1268: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 163 leaves, 7 steps):

$$-\frac{i\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\,f}+\frac{i\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\,f}$$

Result (type 4, 79 064 leaves): Display of huge result suppressed!

- **Problem 1269: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 206 leaves, 8 steps):

$$-\frac{i\sqrt{c-i d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{3/2} f}+\frac{i\sqrt{c+i d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{3/2} f}-\frac{2 b\sqrt{c+d\,\text{Tan}[e+f x]}}{\left(a^2+b^2\right) f\sqrt{a+b\,\text{Tan}[e+f x]}}$$

Result (type 4, 183 017 leaves) : Display of huge result suppressed!

- **Problem 1270: Humongous result has more than 200000 leaves.**

$$\int\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{(a+b\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 280 leaves, 9 steps) :

$$-\frac{i\sqrt{c-i d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{5/2} f}+\frac{i\sqrt{c+i d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{5/2} f}-$$
$$\frac{2 b\sqrt{c+d\,\text{Tan}[e+f x]}}{3\left(a^2+b^2\right) f\,(a+b\,\text{Tan}[e+f x])^{3/2}}-\frac{2 b\left(6 a b c-5 a^2 d+b^2 d\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{3\left(a^2+b^2\right)^2(b c-a d) f\sqrt{a+b\,\text{Tan}[e+f x]}}$$

Result (type ?, 273 452 leaves) : Display of huge result suppressed!

- **Problem 1271: Humongous result has more than 200000 leaves.**

$$\int(a+b\,\text{Tan}[e+f x])^{3/2}\,(c+d\,\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 330 leaves, 14 steps) :

$$-\frac{i (a-i b)^{3/2} (c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}+$$
$$\frac{i (a+i b)^{3/2} (c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}+\frac{\left(18 a b c d+3 a^2 d^2+b^2\left(3 c^2-8 d^2\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{4\sqrt{b}\,\sqrt{d}\,f}+$$
$$\frac{(3 b c+5 a d)\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{4 f}+\frac{b\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}{2 f}$$

Result (type ?, 554 429 leaves) : Display of huge result suppressed!

- **Problem 1272: Humongous result has more than 200000 leaves.**

$$\int\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}\,dx$$

Optimal (type 3, 258 leaves, 13 steps) :

$$-\frac{i\sqrt{a-ib}\,(c-id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a-ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{f}+\frac{i\sqrt{a+ib}\,(c+id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a+ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{f}+$$
$$\frac{\sqrt{d}\,(3bc+ad)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{\sqrt{b}\,f}+\frac{d\sqrt{a+b\,\text{Tan}[e+fx]}\,\sqrt{c+d\,\text{Tan}[e+fx]}}{f}$$

Result (type ?, 349 255 leaves) : Display of huge result suppressed !

- **Problem 1273: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d\,\text{Tan}[e+fx])^{3/2}}{\sqrt{a+b\,\text{Tan}[e+fx]}}\,dx$$

Optimal (type 3, 218 leaves, 12 steps) :

$$-\frac{i\,(c-id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a-ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{\sqrt{a-ib}\,f}+\frac{i\,(c+id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a+ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{\sqrt{a+ib}\,f}+\frac{2\,d^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{\sqrt{b}\,f}$$

Result (type 4, 168 721 leaves) : Display of huge result suppressed !

- **Problem 1274: Humongous result has more than 200000 leaves.**

$$\int \frac{(c+d\,\text{Tan}[e+fx])^{3/2}}{(a+b\,\text{Tan}[e+fx])^{3/2}}\,dx$$

Optimal (type 3, 213 leaves, 8 steps) :

$$-\frac{i\,(c-id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a-ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{(a-ib)^{3/2}\,f}+\frac{i\,(c+id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a+ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{(a+ib)^{3/2}\,f}-\frac{2\,(bc-ad)\,\sqrt{c+d\,\text{Tan}[e+fx]}}{\left(a^2+b^2\right)\,f\,\sqrt{a+b\,\text{Tan}[e+fx]}}$$

Result (type ?, 273 501 leaves) : Display of huge result suppressed !

- **Problem 1275: Humongous result has more than 200000 leaves.**

$$\int \frac{(c+d\,\text{Tan}[e+fx])^{3/2}}{(a+b\,\text{Tan}[e+fx])^{5/2}}\,dx$$

Optimal (type 3, 277 leaves, 9 steps) :

$$-\frac{i\,(c-id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a-ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{(a-ib)^{5/2}\,f}+\frac{i\,(c+id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+id}\,\sqrt{a+b\,\text{Tan}[e+fx]}}{\sqrt{a+ib}\,\sqrt{c+d\,\text{Tan}[e+fx]}}\right]}{(a+ib)^{5/2}\,f}-$$
$$\frac{2\,(bc-ad)\,\sqrt{c+d\,\text{Tan}[e+fx]}}{3\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+fx])^{3/2}}-\frac{4\left(3abc-a^2d+2b^2d\right)\sqrt{c+d\,\text{Tan}[e+fx]}}{3\left(a^2+b^2\right)^2\,f\,\sqrt{a+b\,\text{Tan}[e+fx]}}$$

Result (type ?, 416 193 leaves) : Display of huge result suppressed!

- **Problem 1276: Humongous result has more than 200000 leaves.**

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 391 leaves, 10 steps) :

$$-\frac{i\,(c-i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{7/2}\,f}+\frac{i\,(c+i\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{7/2}\,f}-\frac{2\,(b\,c-a\,d)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{5\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}-$$

$$\frac{4\,\left(5\,a\,b\,c-2\,a^2\,d+3\,b^2\,d\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{15\,\left(a^2+b^2\right)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,\left(50\,a^3\,b\,c\,d-70\,a\,b^3\,c\,d-8\,a^4\,d^2-a^2\,b^2\,\left(45\,c^2-49\,d^2\right)+3\,b^4\,\left(5\,c^2-d^2\right)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{15\,\left(a^2+b^2\right)^3\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 545 183 leaves) : Display of huge result suppressed!

- **Problem 1277: Humongous result has more than 200000 leaves.**

$$\int (a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 429 leaves, 15 steps) :

$$-\frac{i\,(a-i\,b)^{3/2}\,(c-i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{i\,(a+i\,b)^{3/2}\,(c+i\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+$$

$$\frac{\left(15\,a^2\,b\,c\,d^2-a^3\,d^3+3\,a\,b^2\,d\,\left(15\,c^2-8\,d^2\right)+5\,b^3\,\left(c^3-8\,c\,d^2\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{8\,b^{3/2}\,\sqrt{d}\,f}+$$

$$\frac{\left(14\,a\,b\,c\,d-a^2\,d^2+b^2\,\left(11\,c^2-8\,d^2\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{8\,b\,f}+$$

$$\frac{d\,(13\,b\,c-a\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{12\,b\,f}+\frac{d^2\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,b\,f}$$

Result (type ?, 677 340 leaves) : Display of huge result suppressed!

- **Problem 1278: Humongous result has more than 200000 leaves.**

$$\int \sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 339 leaves, 14 steps) :

$$-\frac{i\sqrt{a-i b}\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}+\frac{i\sqrt{a+i b}\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}+\frac{\sqrt{d}\,\left(10\,a\,b\,c\,d-a^2 d^2+b^2\left(15\,c^2-8\,d^2\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{4\,b^{3/2}\,f}+\frac{d\,(9\,b\,c-a\,d)\,\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{4\,b\,f}+\frac{d^2\,(a+b\,\text{Tan}[e+f x])^{3/2}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{2\,b\,f}$$

Result (type ?, 444049 leaves) : Display of huge result suppressed!

- **Problem 1279: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{5/2}}{\sqrt{a+b\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 264 leaves, 13 steps) :

$$-\frac{i\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,f}+\frac{i\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,f}+\frac{d^{3/2}\,(5\,b\,c-a\,d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{b^{3/2}\,f}+\frac{d^2\,\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{b\,f}$$

Result (type ?, 234444 leaves) : Display of huge result suppressed!

- **Problem 1280: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{5/2}}{(a+b\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 273 leaves, 13 steps) :

$$-\frac{i\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{3/2}\,f}+\frac{i\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{3/2}\,f}+\frac{2\,d^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{b^{3/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,\sqrt{c+d\,\text{Tan}[e+f x]}}{b\,\left(a^2+b^2\right)\,f\,\sqrt{a+b\,\text{Tan}[e+f x]}}$$

Result (type ?, 440773 leaves) : Display of huge result suppressed!

- **Problem 1281: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{5/2}}{(a+b\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 292 leaves, 9 steps):

$$-\frac{i\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{5/2}\,f}+\frac{i\,(c+i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^{3/2}}-\frac{2\,(b\,c-a\,d)\,\left(6\,a\,b\,c+a^2\,d+7\,b^2\,d\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,b\,\left(a^2+b^2\right)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}$$

Result (type ?, 545 134 leaves): Display of huge result suppressed!

■ Problem 1282: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^{5/2}}{(a+b\,\text{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 398 leaves, 10 steps):

$$-\frac{i\,(c-i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{7/2}\,f}+\frac{i\,(c+i\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{7/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{5\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^{5/2}}-\frac{2\,(b\,c-a\,d)\,\left(10\,a\,b\,c+a^2\,d+11\,b^2\,d\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{15\,b\,\left(a^2+b^2\right)^2\,f\,(a+b\,\text{Tan}[e+f\,x])^{3/2}}+\frac{2\,\left(20\,a^3\,b\,c\,d-100\,a\,b^3\,c\,d+2\,a^4\,d^2+b^4\,\left(15\,c^2-23\,d^2\right)-3\,a^2\,b^2\,\left(15\,c^2-13\,d^2\right)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{15\,b\,\left(a^2+b^2\right)^3\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}$$

Result (type ?, 726 374 leaves): Display of huge result suppressed!

■ Problem 1283: Humongous result has more than 200000 leaves.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^{5/2}}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 264 leaves, 13 steps):

$$-\frac{i\,(a-i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}+\frac{i\,(a+i\,b)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c+i\,d}\,f}-\frac{b^{3/2}\,(b\,c-5\,a\,d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{d^{3/2}\,f}+\frac{b^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{d\,f}$$

Result (type ?, 234 417 leaves): Display of huge result suppressed!

- **Problem 1284: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 218 leaves, 12 steps):

$$-\frac{i\,(a-i\,b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}+\frac{i\,(a+i\,b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c+i\,d}\,f}+\frac{2\,b^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{d}\,f}$$

Result (type 4, 168 721 leaves): Display of huge result suppressed!

- **Problem 1285: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 163 leaves, 7 steps):

$$-\frac{i\,\sqrt{a-i\,b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}+\frac{i\,\sqrt{a+i\,b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{c+i\,d}\,f}$$

Result (type 4, 79 064 leaves): Display of huge result suppressed!

- **Problem 1286: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 163 leaves, 7 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\,\sqrt{c-i\,d}\,f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\,\sqrt{c+i\,d}\,f}$$

Result (type 4, 54 252 leaves): Display of huge result suppressed!

- **Problem 1287: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 218 leaves, 8 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{3/2}\,\sqrt{c-i\,d}\,f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{3/2}\,\sqrt{c+i\,d}\,f}-\frac{2\,b^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 4, 92 860 leaves): Display of huge result suppressed!

- **Problem 1288: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 295 leaves, 9 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{5/2}\,\sqrt{c-i\,d}\,f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{5/2}\,\sqrt{c+i\,d}\,f}-\frac{2\,b^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}-\frac{4\,b^2\,\left(3\,a\,b\,c-4\,a^2\,d-b^2\,d\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,\left(a^2+b^2\right)^2\,(b\,c-a\,d)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 4, 144 931 leaves): Display of huge result suppressed!

- **Problem 1289: Humongous result has more than 200000 leaves.**

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 356 leaves, 14 steps):

$$-\frac{i\,(a-i\,b)^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{3/2}\,f}+\frac{i\,(a+i\,b)^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{3/2}\,f}-\frac{b^{5/2}\,(3\,b\,c-7\,a\,d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{d^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}{d\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}-\frac{b\,\left(2\,a\,d\,(2\,b\,c-a\,d)-b^2\,\left(3\,c^2+d^2\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{d^2\,\left(c^2+d^2\right)\,f}$$

Result (type ?, 635 230 leaves): Display of huge result suppressed!

- **Problem 1290: Humongous result has more than 200000 leaves.**

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 273 leaves, 13 steps):

$$-\frac{i\,(a-i\,b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{3/2}\,f}+\frac{i\,(a+i\,b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{3/2}\,f}+\frac{2\,b^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{d^{3/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{d\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 440 643 leaves): Display of huge result suppressed!

Problem 1291: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^{3/2}}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 213 leaves, 8 steps):

$$-\frac{i\,(a-i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{3/2}\,f}+\frac{i\,(a+i\,b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{3/2}\,f}+\frac{2\,(b\,c-a\,d)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type ?, 273 423 leaves): Display of huge result suppressed!

Problem 1292: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,\text{Tan}[e+f\,x]}}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 206 leaves, 8 steps):

$$-\frac{i\,\sqrt{a-i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{3/2}\,f}+\frac{i\,\sqrt{a+i\,b}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{3/2}\,f}-\frac{2\,d\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 4, 183 017 leaves): Display of huge result suppressed!

Problem 1293: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 218 leaves, 8 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\,(c-i\,d)^{3/2}\,f}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\,(c+i\,d)^{3/2}\,f}+\frac{2\,d^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 4, 92 834 leaves): Display of huge result suppressed!

Problem 1294: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{1}{(a+b\,\text{Tan}[e+f\,x])^{3/2}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 301 leaves, 9 steps):

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{3/2}\,(c-i d)^{3/2}\,f}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{3/2}\,(c+i d)^{3/2}\,f}-\frac{2 b^2}{\left(a^2+b^2\right)\,(b c-a d)\,f\,\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}-\frac{2 d\left(a^2 d^2+b^2\left(c^2+2 d^2\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}}{\left(a^2+b^2\right)\,(b c-a d)^2\left(c^2+d^2\right) f\,\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type 4, 183 335 leaves) : Display of huge result suppressed!

Problem 1295: Humongous result has more than 200000 leaves.

$$\int \frac{1}{(a+b\,\text{Tan}[e+f x])^{5/2}\,(c+d\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 417 leaves, 10 steps) :

$$-\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{5/2}\,(c-i d)^{3/2}\,f}+\frac{i\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{5/2}\,(c+i d)^{3/2}\,f}-\frac{2 b^2}{3\left(a^2+b^2\right)(b c-a d)\,f\,(a+b\,\text{Tan}[e+f x])^{3/2}\sqrt{c+d\,\text{Tan}[e+f x]}}-\frac{4 b^2\left(3 a b c-5 a^2 d-2 b^2 d\right)}{3\left(a^2+b^2\right)^2 (b c-a d)^2 f\,\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}+\frac{2 d\left(3 a^4 d^3-6 a b^3 c\left(c^2+d^2\right)+b^4 d\left(5 c^2+8 d^2\right)+a^2 b^2 d\left(11 c^2+17 d^2\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}}{3\left(a^2+b^2\right)^2 (b c-a d)^3\left(c^2+d^2\right) f\,\sqrt{c+d\,\text{Tan}[e+f x]}}$$

Result (type ?, 273 785 leaves) : Display of huge result suppressed!

Problem 1296: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\text{Tan}[e+f x])^{9/2}}{(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 470 leaves, 15 steps) :

$$-\frac{i\,(a-i b)^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2}\,f}+\frac{i\,(a+i b)^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c+i d)^{5/2}\,f}-\frac{b^{7/2}\,(5 b c-9 a d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{d^{7/2}\,f}-\frac{2\,(b c-a d)^2\,(a+b\,\text{Tan}[e+f x])^{5/2}}{3 d\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^{3/2}}-\frac{2\,(b c-a d)^2\left(5 b c^2+6 a c d+11 b d^2\right)(a+b\,\text{Tan}[e+f x])^{3/2}}{3 d^2\left(c^2+d^2\right)^2 f\,\sqrt{c+d\,\text{Tan}[e+f x]}}+\frac{1}{d^3\left(c^2+d^2\right)^2 f}b\left(4 a^3 c d^3-4 a^2 b d^2\left(c^2-2 d^2\right)-4 a b^2 c d\left(c^2+4 d^2\right)+b^3\left(5 c^4+10 c^2 d^2+d^4\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}$$

Result (type ?, 936 188 leaves) : Display of huge result suppressed!

Problem 1297: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 347 leaves, 14 steps):

$$-\frac{i\,(a-i\,b)^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{i\,(a+i\,b)^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{5/2}\,f}+\frac{2\,b^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{d^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,d\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}-\frac{2\,(b\,c-a\,d)^2\,\left(2\,a\,c\,d+b\,(c^2+3\,d^2)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{d^2\,(c^2+d^2)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 691 126 leaves): Display of huge result suppressed!

Problem 1298: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 292 leaves, 9 steps):

$$-\frac{i\,(a-i\,b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{i\,(a+i\,b)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{5/2}\,f}-\frac{2\,(b\,c-a\,d)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,d\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,(b\,c-a\,d)\,\left(6\,a\,c\,d+b\,(c^2+7\,d^2)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,d\,(c^2+d^2)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 545 056 leaves): Display of huge result suppressed!

Problem 1299: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 276 leaves, 9 steps):

$$-\frac{i\,(a-i\,b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{i\,(a+i\,b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{5/2}\,f}+\frac{2\,(b\,c-a\,d)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,(c^2+d^2)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{4\,\left(b\,c^2-3\,a\,c\,d-2\,b\,d^2\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,(c^2+d^2)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 416 193 leaves): Display of huge result suppressed!

- **Problem 1300: Humongous result has more than 200000 leaves.**

$$\int \frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 283 leaves, 9 steps):

$$-\frac{i\,\sqrt{a-i\,b}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c-i\,d)^{5/2}\,f}+\frac{i\,\sqrt{a+i\,b}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(c+i\,d)^{5/2}\,f}-\frac{2\,d\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,\left(c^2+d^2\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,d\,\left(6\,a\,c\,d-b\,\left(5\,c^2-d^2\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,(b\,c-a\,d)\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 273 530 leaves): Display of huge result suppressed!

- **Problem 1301: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\;(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 295 leaves, 9 steps):

$$-\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a-i\,b}\;(c-i\,d)^{5/2}\,f}+\frac{i\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{\sqrt{a+i\,b}\;(c+i\,d)^{5/2}\,f}+\frac{2\,d^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}-\frac{4\,d^2\,\left(3\,a\,c\,d-b\,\left(4\,c^2+d^2\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{3\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 4, 144 931 leaves): Display of huge result suppressed!

- **Problem 1302: Humongous result has more than 200000 leaves.**

$$\int \frac{1}{(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\;(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 433 leaves, 10 steps):

$$-\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d}\ \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b}\ \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-i b)^{3/2} (c-i d)^{5/2} f}+\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d}\ \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b}\ \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+i b)^{3/2} (c+i d)^{5/2} f}-$$

$$\frac{2 b^2}{\left(a^2+b^2\right) (b c-a d) f \sqrt{a+b \operatorname{Tan}[e+f x]}\ (c+d \operatorname{Tan}[e+f x])^{3/2}}-\frac{2 d \left(a^2 d^2+b^2 \left(3 c^2+4 d^2\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}}{3 \left(a^2+b^2\right) (b c-a d)^2 \left(c^2+d^2\right) f (c+d \operatorname{Tan}[e+f x])^{3/2}}+$$

$$\frac{2 \left(6 a^3 c d^4+6 a b^2 c d^4-a^2 b d^3 \left(11 c^2+5 d^2\right)-b^3 \left(3 c^4 d+17 c^2 d^3+8 d^5\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}}{3 \left(a^2+b^2\right) (b c-a d)^3 \left(c^2+d^2\right)^2 f \sqrt{c+d \operatorname{Tan}[e+f x]}}$$

Result (type ?, 273 872 leaves) : Display of huge result suppressed!

- **Problem 1303: Humongous result has more than 200000 leaves.**

$$\int \frac{1}{(a+b \operatorname{Tan}[e+f x])^{5/2} (c+d \operatorname{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 596 leaves, 11 steps) :

$$-\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d}\ \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b}\ \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-i b)^{5/2} (c-i d)^{5/2} f}+\frac{i \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d}\ \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b}\ \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+i b)^{5/2} (c+i d)^{5/2} f}-$$

$$\frac{2 b^2}{3 \left(a^2+b^2\right) (b c-a d) f (a+b \operatorname{Tan}[e+f x])^{3/2} (c+d \operatorname{Tan}[e+f x])^{3/2}}-\frac{4 b^2 \left(a b c-2 a^2 d-b^2 d\right)}{\left(a^2+b^2\right)^2 (b c-a d)^2 f \sqrt{a+b \operatorname{Tan}[e+f x]}\ (c+d \operatorname{Tan}[e+f x])^{3/2}}+$$

$$\frac{2 d \left(a^4 d^3-6 a b^3 c \left(c^2+d^2\right)+b^4 d \left(7 c^2+8 d^2\right)+a^2 b^2 d \left(13 c^2+15 d^2\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}}{3 \left(a^2+b^2\right)^2 (b c-a d)^3 \left(c^2+d^2\right) f (c+d \operatorname{Tan}[e+f x])^{3/2}}-$$

$$\left(4 d \left(3 a^5 c d^4+6 a^3 b^2 c d^4-a^4 b d^3 \left(7 c^2+4 d^2\right)+3 a b^4 c \left(c^4+2 c^2 d^2+2 d^4\right)-b^5 d \left(4 c^4+15 c^2 d^2+8 d^4\right)-a^2 b^3 d \left(7 c^4+28 c^2 d^2+15 d^4\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}\right) \Big/ \left(3 \left(a^2+b^2\right)^2 (b c-a d)^4 \left(c^2+d^2\right)^2 f \sqrt{c+d \operatorname{Tan}[e+f x]}\right)$$

Result (type ?, 416 578 leaves) : Display of huge result suppressed!

- **Problem 1304: Unable to integrate problem.**

$$\int (a+b \operatorname{Tan}[e+f x])^m (c+d \operatorname{Tan}[e+f x])^n \, dx$$

Optimal (type 6, 257 leaves, 7 steps) :

$$\frac{1}{2(\mathrm{i}\,a+b)\,f\,(1+m)}\text{AppellF1}\left[1+m,-n,1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathrm{i}\,b}\right]$$
$$(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^{n}\left(\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right)^{-n}-\frac{1}{2(\mathrm{i}\,a-b)\,f\,(1+m)}$$
$$\text{AppellF1}\left[1+m,-n,1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^{n}\left(\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right)^{-n}$$

Result (type 8, 27 leaves) :

$$\int(a+b\,\text{Tan}[e+f\,x])^{m}\,(c+d\,\text{Tan}[e+f\,x])^{n}\,dx$$

- **Problem 1308: Result unnecessarily involves imaginary or complex numbers.**

$$\int(a+b\,\text{Tan}[e+f\,x])^{m}\,dx$$

Optimal (type 5, 167 leaves, 5 steps) :

$$\frac{b\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a-\sqrt{-b^2}}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\sqrt{-b^2}\left(a-\sqrt{-b^2}\right)f\,(1+m)}-$$
$$\frac{b\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a+\sqrt{-b^2}}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\sqrt{-b^2}\left(a+\sqrt{-b^2}\right)f\,(1+m)}$$

Result (type 5, 161 leaves) :

$$-\frac{1}{2\,f\,m}\mathrm{i}\,(a+b\,\text{Tan}[e+f\,x])^{m}\left(\text{Hypergeometric2F1}\left[-m,-m,1-m,-\frac{a+\mathrm{i}\,b}{b\,(-\mathrm{i}+\text{Tan}[e+f\,x])}\right]\left(\frac{a+b\,\text{Tan}[e+f\,x]}{b\,(-\mathrm{i}+\text{Tan}[e+f\,x])}\right)^{-m}-\right.$$
$$\left.\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{-a+\mathrm{i}\,b}{b\,(\mathrm{i}+\text{Tan}[e+f\,x])}\right]\left(\frac{a+b\,\text{Tan}[e+f\,x]}{b\,(\mathrm{i}+\text{Tan}[e+f\,x])}\right)^{-m}\right)$$

- **Problem 1310: Unable to integrate problem.**

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^{m}}{(c+d\,\text{Tan}[e+f\,x])^{2}}\,dx$$

Optimal (type 5, 301 leaves, 9 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(i\,a+b)\,(c-i\,d)^2\,f\,(1+m)}-\frac{\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(i\,a-b)\,(c+i\,d)^2\,f\,(1+m)}-$$
$$\left(d^2\left(2\,a\,c\,d-b\left(c^2\,(2-m)-d^2\,m\right)\right)\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\right)\Big/$$
$$\left((b\,c-a\,d)^2\left(c^2+d^2\right)^2 f\,(1+m)\right)+\frac{d^2\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{(b\,c-a\,d)\left(c^2+d^2\right)f\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 8, 27 leaves) :

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^2}\,dx$$

Problem 1311: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 455 leaves, 10 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(i\,a+b)\,(c-i\,d)^3\,f\,(1+m)}+\frac{\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(a+i\,b)\,(i\,c-d)^3\,f\,(1+m)}+$$
$$\left(d^2\left(2\,a^2\,d^2\left(3\,c^2-d^2\right)-4\,a\,b\,c\,d\left(c^2\,(3-m)-d^2\,(1+m)\right)-b^2\left(d^4\,(1-m)\,m+2\,c^2\,d^2\left(1+3\,m-m^2\right)-c^4\left(6-5\,m+m^2\right)\right)\right)\right.$$
$$\left.\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\right)\Big/\left(2\,(b\,c-a\,d)^3\left(c^2+d^2\right)^3 f\,(1+m)\right)+$$
$$\frac{d^2\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(b\,c-a\,d)\left(c^2+d^2\right)f\,(c+d\,\text{Tan}[e+f\,x])^2}-\frac{d^2\left(4\,a\,c\,d-b\left(d^2\,(1-m)+c^2\,(5-m)\right)\right)(a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(b\,c-a\,d)^2\left(c^2+d^2\right)^2 f\,(c+d\,\text{Tan}[e+f\,x])}$$

Result (type 8, 27 leaves) :

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^3}\,dx$$

Problem 1312: Unable to integrate problem.

$$\int(a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 6, 283 leaves, 7 steps) :

$$\left((b c - a d)\,\text{AppellF1}\left[1+m, -\frac{3}{2}, 1, 2+m, -\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b c - a d}, \frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/$$

$$\left(2\,b\,(i\,a+b)\,f\,(1+m)\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b c - a d}}\right) -$$

$$\left((b c - a d)\,\text{AppellF1}\left[1+m, -\frac{3}{2}, 1, 2+m, -\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b c - a d}, \frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/$$

$$\left(2\,(i\,a-b)\,b\,f\,(1+m)\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b c - a d}}\right)$$

Result (type 8, 29 leaves) :

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Problem 1313: Unable to integrate problem.

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 6, 261 leaves, 7 steps) :

$$\frac{\text{AppellF1}\left[1+m, -\frac{1}{2}, 1, 2+m, -\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b c-a d}, \frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,(i\,a+b)\,f\,(1+m)\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b c-a d}}} -$$

$$\frac{\text{AppellF1}\left[1+m, -\frac{1}{2}, 1, 2+m, -\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b c-a d}, \frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,(i\,a-b)\,f\,(1+m)\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b c-a d}}}$$

Result (type 8, 29 leaves) :

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Problem 1314: Unable to integrate problem.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^m}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 6, 261 leaves, 7 steps) :

$$\frac{\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a+b)\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-$$

$$\frac{\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a-b)\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 29 leaves):

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Problem 1315: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 6, 283 leaves, 7 steps):

$$\frac{b\,\text{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a+b)\,(b\,c-a\,d)\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-$$

$$\frac{b\,\text{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a-b)\,(b\,c-a\,d)\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 29 leaves):

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Problem 1316: Unable to integrate problem.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 6, 287 leaves, 7 steps):

$$\frac{b^2\,\text{AppellF1}\left[1+m,\frac{5}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a-i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a+b)\,(b\,c-a\,d)^2\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}-$$

$$\frac{b^2\,\text{AppellF1}\left[1+m,\frac{5}{2},1,2+m,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\frac{a+b\,\text{Tan}[e+f\,x]}{a+i\,b}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,\sqrt{\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}}}{2\,(i\,a-b)\,(b\,c-a\,d)^2\,f\,(1+m)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}$$

Result (type 8, 29 leaves) :

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^m}{(c+d\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

- **Problem 1317: Unable to integrate problem.**

$$\int(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,dx$$

Optimal (type 6, 99 leaves, 4 steps) :

$$\frac{1}{f\,(1+n\,p)}\text{AppellF1}[1+n\,p,1-m,1,2+n\,p,-i\,\text{Tan}[e+f\,x],i\,\text{Tan}[e+f\,x]]$$
$$(1+i\,\text{Tan}[e+f\,x])^{-m}\,\text{Tan}[e+f\,x]\,(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^m$$

Result (type 8, 32 leaves) :

$$\int(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^m\,dx$$

- **Problem 1318: Unable to integrate problem.**

$$\int(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,dx$$

Optimal (type 5, 132 leaves, 8 steps) :

$$-\frac{3\,a^3\,\text{Tan}[e+f\,x]\,(c\,(d\,\text{Tan}[e+f\,x])^p)^n}{f\,(1+n\,p)}+$$
$$\frac{4\,a^3\,\text{Hypergeometric2F1}[1,1+n\,p,2+n\,p,i\,\text{Tan}[e+f\,x]]\,\text{Tan}[e+f\,x]\,(c\,(d\,\text{Tan}[e+f\,x])^p)^n}{f\,(1+n\,p)}-\frac{i\,a^3\,\text{Tan}[e+f\,x]^2\,(c\,(d\,\text{Tan}[e+f\,x])^p)^n}{f\,(2+n\,p)}$$

Result (type 8, 32 leaves) :

$$\int(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^3\,dx$$

- **Problem 1319: Unable to integrate problem.**

$$\int(c\,(d\,\text{Tan}[e+f\,x])^p)^n\,(a+i\,a\,\text{Tan}[e+f\,x])^2\,dx$$

Optimal (type 5, 93 leaves, 5 steps):

$$-\frac{a^2 \operatorname{Tan}[e+f x] \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{f (1+n p)}+\frac{2 a^2 \operatorname{Hypergeometric2F1}[1, 1+n p, 2+n p, i \operatorname{Tan}[e+f x]] \operatorname{Tan}[e+f x] \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{f (1+n p)}$$

Result (type 8, 32 leaves):

$$\int \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n (a+i a \operatorname{Tan}[e+f x])^2 \, dx$$

Problem 1320: Unable to integrate problem.

$$\int \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n (a+i a \operatorname{Tan}[e+f x]) \, dx$$

Optimal (type 5, 54 leaves, 4 steps):

$$\frac{a \operatorname{Hypergeometric2F1}[1, 1+n p, 2+n p, i \operatorname{Tan}[e+f x]] \operatorname{Tan}[e+f x] \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{f (1+n p)}$$

Result (type 8, 30 leaves):

$$\int \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n (a+i a \operatorname{Tan}[e+f x]) \, dx$$

Problem 1321: Unable to integrate problem.

$$\int \frac{\left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 5, 134 leaves, 8 steps):

$$\frac{\operatorname{Hypergeometric2F1}\left[2, \frac{1}{2} (1+n p), \frac{1}{2} (3+n p), -\operatorname{Tan}[e+f x]^2\right] \operatorname{Tan}[e+f x] \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{a f (1+n p)}-$$
$$\frac{i \operatorname{Hypergeometric2F1}\left[2, \frac{1}{2} (2+n p), \frac{1}{2} (4+n p), -\operatorname{Tan}[e+f x]^2\right] \operatorname{Tan}[e+f x]^2 \left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{a f (2+n p)}$$

Result (type 8, 32 leaves):

$$\int \frac{\left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Problem 1322: Unable to integrate problem.

$$\int \frac{\left(c \left(d \operatorname{Tan}[e+f x]\right)^p\right)^n}{(a+i a \operatorname{Tan}[e+f x])^2} \, dx$$

Optimal (type 5, 227 leaves, 8 steps):

$$\frac{1}{8 a^2 f (1+n p)}\left(1-4 n p+2 n^2 p^2\right) \text{Hypergeometric2F1}[1, 1+n p, 2+n p, -i \tan[e+f x]] \tan[e+f x] (c (d \tan[e+f x])^p)^n +$$
$$\frac{\text{Hypergeometric2F1}[1, 1+n p, 2+n p, i \tan[e+f x]] \tan[e+f x] (c (d \tan[e+f x])^p)^n}{8 a^2 f (1+n p)} +$$
$$\frac{\tan[e+f x] (c (d \tan[e+f x])^p)^n}{4 a^2 f (1+i \tan[e+f x])^2} + \frac{(2-n p) \tan[e+f x] (c (d \tan[e+f x])^p)^n}{4 a^2 f (1+i \tan[e+f x])}$$

Result (type 8, 32 leaves) :

$$\int \frac{(c (d \tan[e+f x])^p)^n}{(a+i a \tan[e+f x])^2} \, dx$$

Problem 1323: Unable to integrate problem.

$$\int (c (d \tan[e+f x])^p)^n (a+b \tan[e+f x])^m \, dx$$

Optimal (type 6, 201 leaves, 8 steps) :

$$\frac{1}{2 f (1+n p)} \text{AppellF1}\left[1+n p, -m, 1, 2+n p, -\frac{b \tan[e+f x]}{a}, -i \tan[e+f x]\right]$$
$$\tan[e+f x] (c (d \tan[e+f x])^p)^n (a+b \tan[e+f x])^m \left(1+\frac{b \tan[e+f x]}{a}\right)^{-m} + \frac{1}{2 f (1+n p)}$$
$$\text{AppellF1}\left[1+n p, -m, 1, 2+n p, -\frac{b \tan[e+f x]}{a}, i \tan[e+f x]\right] \tan[e+f x] (c (d \tan[e+f x])^p)^n (a+b \tan[e+f x])^m \left(1+\frac{b \tan[e+f x]}{a}\right)^{-m}$$

Result (type 8, 29 leaves) :

$$\int (c (d \tan[e+f x])^p)^n (a+b \tan[e+f x])^m \, dx$$

Problem 1324: Result more than twice size of optimal antiderivative.

$$\int (c (d \tan[e+f x])^p)^n (a+b \tan[e+f x])^3 \, dx$$

Optimal (type 5, 219 leaves, 7 steps) :

$$\frac{3 a b^2 \tan[e+f x] (c (d \tan[e+f x])^p)^n}{f (1+n p)} + \frac{1}{f (1+n p)}$$
$$a \left(a^2-3 b^2\right) \text{Hypergeometric2F1}\left[1, \frac{1}{2} (1+n p), \frac{1}{2} (3+n p), -\tan[e+f x]^2\right] \tan[e+f x] (c (d \tan[e+f x])^p)^n +$$
$$\frac{b^3 \tan[e+f x]^2 (c (d \tan[e+f x])^p)^n}{f (2+n p)} + \frac{1}{f (2+n p)}$$
$$b \left(3 a^2-b^2\right) \text{Hypergeometric2F1}\left[1, \frac{1}{2} (2+n p), \frac{1}{2} (4+n p), -\tan[e+f x]^2\right] \tan[e+f x]^2 (c (d \tan[e+f x])^p)^n$$

Result (type 5, 519 leaves):

$$-\left(b^3 \operatorname{Cos}[e+f x] \text{Hypergeometric2F1}\left[\frac{1}{2}(-2-n p), \frac{1}{2}(-2-n p), -\frac{n p}{2}, \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x]^4 \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-4-n p)} \left(c\,(d \operatorname{Tan}[e+f x])^p\right)^n (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f\,(-2-n p)\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right) - \left(3 a b^2 \operatorname{Cos}[e+f x]^2 \text{Hypergeometric2F1}\left[\frac{1}{2}(-1-n p), \frac{1}{2}(-1-n p), \frac{1}{2}(1-n p), \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x]^3 \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-3-n p)} \left(c\,(d \operatorname{Tan}[e+f x])^p\right)^n (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f\,(-1-n p)\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right) - \left(a^3 \operatorname{Cos}[e+f x]^4 \text{Hypergeometric2F1}\left[\frac{1}{2}(1-n p), \frac{1}{2}(1-n p), \frac{1}{2}(3-n p), \operatorname{Cos}[e+f x]^2\right] \operatorname{Sin}[e+f x] \left(\operatorname{Sin}[e+f x]^2\right)^{\frac{1}{2}(-1-n p)} \left(c\,(d \operatorname{Tan}[e+f x])^p\right)^n (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f\,(1-n p)\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right) + \left(3 a^2 b \operatorname{Cos}[e+f x]^3 \text{Hypergeometric2F1}\left[-\frac{n p}{2}, -\frac{n p}{2}, \frac{1}{2}(2-n p), \operatorname{Cos}[e+f x]^2\right] \left(\operatorname{Sin}[e+f x]^2\right)^{1+\frac{1}{2}(-2-n p)} \left(c\,(d \operatorname{Tan}[e+f x])^p\right)^n (a+b \operatorname{Tan}[e+f x])^3\right) \Big/ \left(f\, n\, p\,(a \operatorname{Cos}[e+f x]+b \operatorname{Sin}[e+f x])^3\right)$$

Test results for the 855 problems in "4.3.3.1 (a+b tan)^m (c+d tan)^n (A+B tan).m"

- **Problem 9: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x]^2 (a+i a \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])\, dx$$

Optimal (type 3, 141 leaves, 5 steps):

$$-2 a^2 (A-i B) x+\frac{2 a^2 (i A+B) \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}+\frac{2 a^2 (A-i B) \operatorname{Tan}[c+d x]}{d}+\frac{a^2 (i A+B) \operatorname{Tan}[c+d x]^2}{d}-\frac{a^2 (4 A-5 i B) \operatorname{Tan}[c+d x]^3}{12 d}+\frac{i B \operatorname{Tan}[c+d x]^3 \left(a^2+i a^2 \operatorname{Tan}[c+d x]\right)}{4 d}$$

Result (type 3, 924 leaves):

$$\left(\text{Cos}[c+d\,x]^3\,(\mathrm{i}\,A\,\text{Cos}[c]+B\,\text{Cos}[c]+A\,\text{Sin}[c]-\mathrm{i}\,B\,\text{Sin}[c])\,(-2\,\mathrm{i}\,\text{ArcTan}[\text{Tan}[3\,c+d\,x]]\,\text{Cos}[c]-2\,\text{ArcTan}[\text{Tan}[3\,c+d\,x]]\,\text{Sin}[c])\right.$$
$$\left.(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^3\,(\mathrm{i}\,A\,\text{Cos}[c]+B\,\text{Cos}[c]+A\,\text{Sin}[c]-\mathrm{i}\,B\,\text{Sin}[c])\,\left(\text{Cos}[c]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]-\mathrm{i}\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}[c]\right)\right.$$
$$\left.(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]\,\text{Sec}[c]\,(6\,\mathrm{i}\,A\,\text{Cos}[c]+9\,B\,\text{Cos}[c]-2\,A\,\text{Sin}[c]+4\,\mathrm{i}\,B\,\text{Sin}[c])\,\left(\frac{1}{6}\,\text{Cos}[2\,c]-\frac{1}{6}\,\mathrm{i}\,\text{Sin}[2\,c]\right)\right.$$
$$\left.(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\frac{\text{Sec}[c+d\,x]\,\left(-\frac{1}{4}\,B\,\text{Cos}[2\,c]+\frac{1}{4}\,\mathrm{i}\,B\,\text{Sin}[2\,c]\right)\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\frac{(A-\mathrm{i}\,B)\,\text{Cos}[c+d\,x]^3\,(-2\,d\,x\,\text{Cos}[2\,c]+2\,\mathrm{i}\,d\,x\,\text{Sin}[2\,c])\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\left(\text{Sec}[c]\,\left(\frac{1}{3}\,\text{Cos}[2\,c]-\frac{1}{3}\,\mathrm{i}\,\text{Sin}[2\,c]\right)\,(-A\,\text{Sin}[d\,x]+2\,\mathrm{i}\,B\,\text{Sin}[d\,x])\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,\left(\frac{1}{3}\,\text{Cos}[2\,c]-\frac{1}{3}\,\mathrm{i}\,\text{Sin}[2\,c]\right)\,(7\,A\,\text{Sin}[d\,x]-8\,\mathrm{i}\,B\,\text{Sin}[d\,x])\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(x\,\text{Cos}[c+d\,x]^3\,\left(-2\,A\,\text{Cos}[c]^2+2\,\mathrm{i}\,B\,\text{Cos}[c]^2+6\,\mathrm{i}\,A\,\text{Cos}[c]\,\text{Sin}[c]+6\,B\,\text{Cos}[c]\,\text{Sin}[c]+6\,A\,\text{Sin}[c]^2-\right.\right.$$
$$\left.6\,\mathrm{i}\,B\,\text{Sin}[c]^2-2\,\mathrm{i}\,A\,\text{Sin}[c]^2\,\text{Tan}[c]-2\,B\,\text{Sin}[c]^2\,\text{Tan}[c]-\mathrm{i}\,(A-\mathrm{i}\,B)\,(2\,\text{Cos}[2\,c]-2\,\mathrm{i}\,\text{Sin}[2\,c])\,\text{Tan}[c]\right)$$
$$\left.(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left((\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 10: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 107 leaves, 4 steps):

$$-2\,a^2\,(\mathrm{i}\,A+B)\,x-\frac{2\,a^2\,(A-\mathrm{i}\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^2\,(\mathrm{i}\,A+B)\,\text{Tan}[c+d\,x]}{d}+\frac{A\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^2}{2\,d}-\frac{\mathrm{i}\,B\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^3}{3\,a\,d}$$

Result (type 3, 273 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\Big(2\,(i\,A+B)\,\text{ArcTan}[\text{Tan}[3\,c+d\,x]]\,\text{Cos}[c+d\,x]^3\,(\text{Cos}[2\,c]-i\,\text{Sin}[2\,c])-(A-i\,B)\,\text{Cos}[c+d\,x]^3\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\,(\text{Cos}[2\,c]-i\,\text{Sin}[2\,c])+(A-i\,B)\,\text{Cos}[c+d\,x]^3\,(-4\,i\,d\,x\,\text{Cos}[2\,c]-4\,d\,x\,\text{Sin}[2\,c])+\frac{1}{3}\,(6\,A-7\,i\,B)\,\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,(i\,\text{Cos}[2\,c]+\text{Sin}[2\,c])\,\text{Sin}[d\,x]+\frac{1}{3}\,B\,\text{Cos}[c]\,\text{Sin}[d\,x]\,(i+\text{Tan}[c])^2-\frac{1}{6}\,\text{Cos}[c+d\,x]\,(\text{Cos}[2\,c]-i\,\text{Sin}[2\,c])\,(3\,A-6\,i\,B+2\,B\,\text{Tan}[c])\Big)\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 11: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 80 leaves, 3 steps):

$$2\,a^2\,(A-i\,B)\,x-\frac{2\,a^2\,(i\,A+B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{a^2\,(A-i\,B)\,\text{Tan}[c+d\,x]}{d}+\frac{B\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{2\,d}$$

Result (type 3, 263 leaves):

$$\frac{1}{4\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2}\,a^2\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[2\,d\,x]+i\,\text{Sin}[2\,d\,x])\Big(-8\,(A-i\,B)\,\text{ArcTan}[\text{Tan}[3\,c+d\,x]]\,\text{Cos}[c]\,\text{Cos}[c+d\,x]^2-i\,\Big(4\,i\,A\,d\,x\,\text{Cos}[3\,c+2\,d\,x]+4\,B\,d\,x\,\text{Cos}[3\,c+2\,d\,x]+(i\,A+B)\,\text{Cos}[c+2\,d\,x]\,\big(4\,d\,x-i\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\big)+A\,\text{Cos}[3\,c+2\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]-i\,B\,\text{Cos}[3\,c+2\,d\,x]\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]+2\,\text{Cos}[c]\,\big(-i\,B+4\,i\,A\,d\,x+4\,B\,d\,x+(A-i\,B)\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]\big)+2\,i\,A\,\text{Sin}[c]+4\,B\,\text{Sin}[c]-2\,i\,A\,\text{Sin}[c+2\,d\,x]-4\,B\,\text{Sin}[c+2\,d\,x]\Big)\Big)$$

- **Problem 12: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 75 leaves, 5 steps):

$$2\,a^2\,(i\,A+B)\,x+\frac{a^2\,(A-2\,i\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^2\,A\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{i\,B\,\big(a^2+i\,a^2\,\text{Tan}[c+d\,x]\big)}{d}$$

Result (type 3, 201 leaves):

$$\frac{1}{4\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\,a^2\,\Big(-8\,i\,(A-i\,B)\,\text{ArcTan}[\text{Tan}[3\,c+d\,x]]\,\text{Cos}[c+d\,x]+\text{Sec}[c]\,\Big(\text{Cos}[d\,x]\,\big(8\,(i\,A+B)\,d\,x+(A-2\,i\,B)\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]+A\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\big)+\text{Cos}[2\,c+d\,x]\,\big(8\,(i\,A+B)\,d\,x+(A-2\,i\,B)\,\text{Log}\big[\text{Cos}[c+d\,x]^2\big]+A\,\text{Log}\big[\text{Sin}[c+d\,x]^2\big]\big)-4\,B\,\text{Sin}[d\,x]\Big)\Big)\,(\text{Cos}[2\,d\,x]+i\,\text{Sin}[2\,d\,x])\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 13: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 79 leaves, 5 steps):

$$-2 a^2 (A - i B) x + \frac{a^2 B \operatorname{Log}[\operatorname{Cos}[c + d x]]}{d} + \frac{a^2 (2 i A + B) \operatorname{Log}[\operatorname{Sin}[c + d x]]}{d} - \frac{A \operatorname{Cot}[c + d x] \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)}{d}$$

Result (type 3, 202 leaves):

$$\frac{1}{4 d (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x])^2 (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x])} a^2 (B + A \operatorname{Cot}[c + d x]) (\operatorname{Cos}[2 d x] + i \operatorname{Sin}[2 d x]) \left(\operatorname{Csc}[c] \left(\operatorname{Cos}[2 c + d x] \left(8 (A - i B) d x - B \operatorname{Log}\left[\operatorname{Cos}[c + d x]^2\right] + (-2 i A - B) \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right]\right) + \operatorname{Cos}[d x] \left(-8 (A - i B) d x + B \operatorname{Log}\left[\operatorname{Cos}[c + d x]^2\right] + (2 i A + B) \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right]\right) + 4 A \operatorname{Sin}[d x]\right) + 8 (A - i B) \operatorname{ArcTan}[\operatorname{Tan}[3 c + d x]] \operatorname{Sin}[c + d x]\right)$$

Problem 14: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c + d x]^3 (a + i a \operatorname{Tan}[c + d x])^2 (A + B \operatorname{Tan}[c + d x]) \, dx$$

Optimal (type 3, 94 leaves, 4 steps):

$$-2 a^2 (i A + B) x - \frac{a^2 (3 i A + 2 B) \operatorname{Cot}[c + d x]}{2 d} - \frac{2 a^2 (A - i B) \operatorname{Log}[\operatorname{Sin}[c + d x]]}{d} - \frac{A \operatorname{Cot}[c + d x]^2 \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)}{2 d}$$

Result (type 3, 302 leaves):

$$\frac{1}{4 d (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x])^2} a^2 \operatorname{Csc}[c] \operatorname{Csc}[c + d x]^2 (\operatorname{Cos}[2 d x] + i \operatorname{Sin}[2 d x]) \left(2 (2 i A + B) \operatorname{Cos}[c] - 4 i A \operatorname{Cos}[c + 2 d x] - 2 B \operatorname{Cos}[c + 2 d x] - 2 A \operatorname{Sin}[c] - 8 i A d x \operatorname{Sin}[c] - 8 B d x \operatorname{Sin}[c] - 2 A \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[c] + 2 i B \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[c] + 8 (i A + B) \operatorname{ArcTan}[\operatorname{Tan}[3 c + d x]] \operatorname{Sin}[c] \operatorname{Sin}[c + d x]^2 - 4 i A d x \operatorname{Sin}[c + 2 d x] - 4 B d x \operatorname{Sin}[c + 2 d x] - A \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[c + 2 d x] + i B \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[c + 2 d x] + 4 i A d x \operatorname{Sin}[3 c + 2 d x] + 4 B d x \operatorname{Sin}[3 c + 2 d x] + A \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[3 c + 2 d x] - i B \operatorname{Log}\left[\operatorname{Sin}[c + d x]^2\right] \operatorname{Sin}[3 c + 2 d x]\right)$$

Problem 15: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c + d x]^4 (a + i a \operatorname{Tan}[c + d x])^2 (A + B \operatorname{Tan}[c + d x]) \, dx$$

Optimal (type 3, 117 leaves, 5 steps):

$$2 a^2 (A - i B) x + \frac{2 a^2 (A - i B) \operatorname{Cot}[c + d x]}{d} - \frac{a^2 (4 i A + 3 B) \operatorname{Cot}[c + d x]^2}{6 d} - \frac{2 a^2 (i A + B) \operatorname{Log}[\operatorname{Sin}[c + d x]]}{d} - \frac{A \operatorname{Cot}[c + d x]^3 \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)}{3 d}$$

Result (type 3, 435 leaves):

$$\frac{1}{24\,d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2}$$

$$a^2\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^3\,(\mathrm{Cos}[2\,d\,x]+i\,\mathrm{Sin}[2\,d\,x])\,\Big(12\,i\,A\,\mathrm{Cos}[2\,c+d\,x]+6\,B\,\mathrm{Cos}[2\,c+d\,x]-36\,A\,d\,x\,\mathrm{Cos}[2\,c+d\,x]+36\,i\,B\,d\,x\,\mathrm{Cos}[2\,c+d\,x]-$$
$$12\,A\,d\,x\,\mathrm{Cos}[2\,c+3\,d\,x]+12\,i\,B\,d\,x\,\mathrm{Cos}[2\,c+3\,d\,x]+12\,A\,d\,x\,\mathrm{Cos}[4\,c+3\,d\,x]-12\,i\,B\,d\,x\,\mathrm{Cos}[4\,c+3\,d\,x]+$$
$$9\,i\,A\,\mathrm{Cos}[2\,c+d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+9\,B\,\mathrm{Cos}[2\,c+d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+3\,i\,A\,\mathrm{Cos}[2\,c+3\,d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+$$
$$3\,B\,\mathrm{Cos}[2\,c+3\,d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]-3\,i\,A\,\mathrm{Cos}[4\,c+3\,d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]-3\,B\,\mathrm{Cos}[4\,c+3\,d\,x]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+$$
$$3\,\mathrm{Cos}[d\,x]\,\Big(2\,B\,(-1-6\,i\,d\,x)+4\,A\,(-i+3\,d\,x)+(-3\,i\,A-3\,B)\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]\Big)-24\,A\,\mathrm{Sin}[d\,x]+24\,i\,B\,\mathrm{Sin}[d\,x]-$$
$$48\,(A-i\,B)\,\mathrm{ArcTan}[\mathrm{Tan}[3\,c+d\,x]]\,\mathrm{Sin}[c]\,\mathrm{Sin}[c+d\,x]^3-18\,A\,\mathrm{Sin}[2\,c+d\,x]+12\,i\,B\,\mathrm{Sin}[2\,c+d\,x]+14\,A\,\mathrm{Sin}[2\,c+3\,d\,x]-12\,i\,B\,\mathrm{Sin}[2\,c+3\,d\,x]\Big)$$

- **Problem 16: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^5\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 139 leaves, 6 steps):

$$2\,a^2\,(i\,A+B)\,x+\frac{2\,a^2\,(i\,A+B)\,\mathrm{Cot}[c+d\,x]}{d}+\frac{a^2\,(A-i\,B)\,\mathrm{Cot}[c+d\,x]^2}{d}-$$
$$\frac{a^2\,(5\,i\,A+4\,B)\,\mathrm{Cot}[c+d\,x]^3}{12\,d}+\frac{2\,a^2\,(A-i\,B)\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{A\,\mathrm{Cot}[c+d\,x]^4\,\big(a^2+i\,a^2\,\mathrm{Tan}[c+d\,x]\big)}{4\,d}$$

Result (type 3, 902 leaves):

$$a^2 \left(\frac{(i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x]) \text{Csc}[c + d x] \left(-\frac{1}{4} A \text{Cos}[2 c] + \frac{1}{4} i A \text{Sin}[2 c]\right)}{d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} + \right.$$

$$\frac{(i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x]) \text{Csc}[c] \left(\frac{1}{3} \text{Cos}[2 c] - \frac{1}{3} i \text{Sin}[2 c]\right) (2 i A \text{Sin}[d x] + B \text{Sin}[d x])}{d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} +$$

$$\Big((i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x]) \text{Csc}[c] (-4 i A \text{Cos}[c] - 2 B \text{Cos}[c] + 9 A \text{Sin}[c] - 6 i B \text{Sin}[c])$$

$$\left(\frac{1}{6} \text{Cos}[2 c] - \frac{1}{6} i \text{Sin}[2 c]\right) \text{Sin}[c + d x]\Big) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$

$$\left((i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x]) \text{Csc}[c] \left(\frac{1}{3} \text{Cos}[2 c] - \frac{1}{3} i \text{Sin}[2 c]\right) (-8 i A \text{Sin}[d x] - 7 B \text{Sin}[d x]) \text{Sin}[c + d x]^2\right) \Big/$$

$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \Big((i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x])$$

$$(A \text{Cos}[c] - i B \text{Cos}[c] - i A \text{Sin}[c] - B \text{Sin}[c]) (-2 i \text{ArcTan}[\text{Tan}[3 c + d x]] \text{Cos}[c] - 2 \text{ArcTan}[\text{Tan}[3 c + d x]] \text{Sin}[c]) \text{Sin}[c + d x]^3\Big) \Big/$$

$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \Big((i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x])$$

$$(A \text{Cos}[c] - i B \text{Cos}[c] - i A \text{Sin}[c] - B \text{Sin}[c]) \left(\text{Cos}[c] \text{Log}\left[\text{Sin}[c + d x]^2\right] - i \text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}[c]\right) \text{Sin}[c + d x]^3\Big) \Big/$$

$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \Big(x (i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x])$$

$$\Big(6 i A \text{Cos}[c]^2 + 6 B \text{Cos}[c]^2 - 2 A \text{Cos}[c]^2 \text{Cot}[c] + 2 i B \text{Cos}[c]^2 \text{Cot}[c] + 6 A \text{Cos}[c] \text{Sin}[c] - 6 i B \text{Cos}[c] \text{Sin}[c] - 2 i A \text{Sin}[c]^2 -$$

$$2 B \text{Sin}[c]^2 + (A - i B) \text{Cot}[c] (2 \text{Cos}[2 c] - 2 i \text{Sin}[2 c])\Big) \text{Sin}[c + d x]^3\Big) \Big/ \left((\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$

$$\left. \frac{(i A + B) (i + \text{Cot}[c + d x])^2 (B + A \text{Cot}[c + d x]) (2 d x \text{Cos}[2 c] - 2 i d x \text{Sin}[2 c]) \text{Sin}[c + d x]^3}{d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} \right)$$

Problem 17: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c + d x]^2 (a + i a \text{Tan}[c + d x])^3 (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 182 leaves, 6 steps):

$$-4 a^3 (A - i B) x + \frac{4 a^3 (i A + B) \text{Log}[\text{Cos}[c + d x]]}{d} + \frac{4 a^3 (A - i B) \text{Tan}[c + d x]}{d} + \frac{2 a^3 (i A + B) \text{Tan}[c + d x]^2}{d} -$$

$$\frac{a^3 (45 A - 47 i B) \text{Tan}[c + d x]^3}{60 d} + \frac{i a B \text{Tan}[c + d x]^3 (a + i a \text{Tan}[c + d x])^2}{5 d} - \frac{(5 A - 7 i B) \text{Tan}[c + d x]^3 \left(a^3 + i a^3 \text{Tan}[c + d x]\right)}{20 d}$$

Result (type 3, 847 leaves):

$$\left(\cos[c+d x]^4 \left(i A \cos\left[\frac{3 c}{2}\right]+B \cos\left[\frac{3 c}{2}\right]+A \sin\left[\frac{3 c}{2}\right]-i B \sin\left[\frac{3 c}{2}\right]\right)\right.$$

$$\left.\left(2 \cos\left[\frac{3 c}{2}\right] \log\left[\cos[c+d x]^2\right]-2 i \log\left[\cos[c+d x]^2\right] \sin\left[\frac{3 c}{2}\right]\right) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])\right) \Big/$$

$$\left(d (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])\right)+\frac{1}{d (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])}$$

$$\sec[c] \sec[c+d x] \left(\frac{1}{240} \cos[3 c]-\frac{1}{240} i \sin[3 c]\right) (195 i A \cos[d x]+225 B \cos[d x]-300 A d x \cos[d x]+300 i B d x \cos[d x]+$$
$$195 i A \cos[2 c+d x]+225 B \cos[2 c+d x]-300 A d x \cos[2 c+d x]+300 i B d x \cos[2 c+d x]+75 i A \cos[2 c+3 d x]+$$
$$105 B \cos[2 c+3 d x]-150 A d x \cos[2 c+3 d x]+150 i B d x \cos[2 c+3 d x]+75 i A \cos[4 c+3 d x]+105 B \cos[4 c+3 d x]-$$
$$150 A d x \cos[4 c+3 d x]+150 i B d x \cos[4 c+3 d x]-30 A d x \cos[4 c+5 d x]+30 i B d x \cos[4 c+5 d x]-30 A d x \cos[6 c+5 d x]+$$
$$30 i B d x \cos[6 c+5 d x]+420 A \sin[d x]-470 i B \sin[d x]-330 A \sin[2 c+d x]+360 i B \sin[2 c+d x]+270 A \sin[2 c+3 d x]-$$
$$280 i B \sin[2 c+3 d x]-105 A \sin[4 c+3 d x]+135 i B \sin[4 c+3 d x]+75 A \sin[4 c+5 d x]-83 i B \sin[4 c+5 d x])$$

$$(a+i a \tan[c+d x])^3 (A+B \tan[c+d x])+\frac{1}{(\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])}$$

$$x \cos[c+d x]^4 \left(2 A \cos[c]-2 i B \cos[c]-2 A \cos[c]^3+2 i B \cos[c]^3-4 i A \sin[c]-4 B \sin[c]+8 i A \cos[c]^2 \sin[c]+\right.$$
$$8 B \cos[c]^2 \sin[c]+12 A \cos[c] \sin[c]^2-12 i B \cos[c] \sin[c]^2-8 i A \sin[c]^3-8 B \sin[c]^3-2 A \sin[c] \tan[c]+2 i B \sin[c] \tan[c]-$$
$$\left.2 A \sin[c]^3 \tan[c]+2 i B \sin[c]^3 \tan[c]-i (A-i B) (4 \cos[3 c]-4 i \sin[3 c]) \tan[c]\right) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])$$

- **Problem 18: Result more than twice size of optimal antiderivative.**

$$\int \tan[c+d x] (a+i a \tan[c+d x])^3 (A+B \tan[c+d x]) \, dx$$

Optimal (type 3, 138 leaves, 5 steps) :

$$-4 a^3 (i A+B) x-\frac{4 a^3 (A-i B) \log[\cos[c+d x]]}{d}+\frac{2 a^3 (i A+B) \tan[c+d x]}{d}+$$
$$\frac{a (A-i B) (a+i a \tan[c+d x])^2}{2 d}+\frac{A (a+i a \tan[c+d x])^3}{3 d}-\frac{i B (a+i a \tan[c+d x])^4}{4 a d}$$

Result (type 3, 980 leaves) :

$$\left(\cos[c+d x]^4 \left(A \cos\left[\frac{3 c}{2}\right]-i B \cos\left[\frac{3 c}{2}\right]-i A \sin\left[\frac{3 c}{2}\right]-B \sin\left[\frac{3 c}{2}\right]\right) \left(-2 \cos\left[\frac{3 c}{2}\right] \text{Log}\left[\cos[c+d x]^2\right]+2 i \text{Log}\left[\cos[c+d x]^2\right] \sin\left[\frac{3 c}{2}\right]\right)\right.$$

$$\left.(a+i a \tan[c+d x])^3 (A+B \tan[c+d x])\right)\Big/\left(d (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])\right)+$$

$$\left(\cos[c+d x]^2 (-9 A \cos[c]+15 i B \cos[c]-2 i A \sin[c]-6 B \sin[c]) \left(\frac{1}{6} \cos[3 c]-\frac{1}{6} i \sin[3 c]\right) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])\right)\Big/$$

$$\left(d \left(\cos\left[\frac{c}{2}\right]-\sin\left[\frac{c}{2}\right]\right) \left(\cos\left[\frac{c}{2}\right]+\sin\left[\frac{c}{2}\right]\right) (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])\right)+$$

$$\frac{\left(-\frac{1}{4} i B \cos[3 c]-\frac{1}{4} B \sin[3 c]\right) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])}{d (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])}+$$

$$\frac{(A-i B) \cos[c+d x]^4 (-4 i d x \cos[3 c]-4 d x \sin[3 c]) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])}{d (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])}+$$

$$\left(\cos[c+d x] \left(\frac{1}{3} \cos[3 c]-\frac{1}{3} i \sin[3 c]\right) (-i A \sin[d x]-3 B \sin[d x]) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])\right)\Big/$$

$$\left(d \left(\cos\left[\frac{c}{2}\right]-\sin\left[\frac{c}{2}\right]\right) \left(\cos\left[\frac{c}{2}\right]+\sin\left[\frac{c}{2}\right]\right) (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])\right)+$$

$$\left(\cos[c+d x]^3 \left(\frac{1}{3} \cos[3 c]-\frac{1}{3} i \sin[3 c]\right) (13 i A \sin[d x]+15 B \sin[d x]) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])\right)\Big/$$

$$\left(d \left(\cos\left[\frac{c}{2}\right]-\sin\left[\frac{c}{2}\right]\right) \left(\cos\left[\frac{c}{2}\right]+\sin\left[\frac{c}{2}\right]\right) (\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])\right)+$$

$$\frac{1}{(\cos[d x]+i \sin[d x])^3 (A \cos[c+d x]+B \sin[c+d x])}$$

$$x \cos[c+d x]^4 \left(2 i A \cos[c]+2 B \cos[c]-2 i A \cos[c]^3-2 B \cos[c]^3+4 A \sin[c]-4 i B \sin[c]-8 A \cos[c]^2 \sin[c]+8 i B \cos[c]^2 \sin[c]+\right.$$
$$12 i A \cos[c] \sin[c]^2+12 B \cos[c] \sin[c]^2+8 A \sin[c]^3-8 i B \sin[c]^3-2 i A \sin[c] \tan[c]-2 B \sin[c] \tan[c]-$$
$$\left.2 i A \sin[c]^3 \tan[c]-2 B \sin[c]^3 \tan[c]+(A-i B) (4 \cos[3 c]-4 i \sin[3 c]) \tan[c]\right) (a+i a \tan[c+d x])^3 (A+B \tan[c+d x])$$

- **Problem 19: Result more than twice size of optimal antiderivative.**

$$\int (a+i a \tan[c+d x])^3 (A+B \tan[c+d x]) \, dx$$

Optimal (type 3, 110 leaves, 4 steps):

$$4 a^3 (A-i B) x-\frac{4 a^3 (i A+B) \text{Log}[\cos[c+d x]]}{d}-\frac{2 a^3 (A-i B) \tan[c+d x]}{d}+\frac{a (i A+B) (a+i a \tan[c+d x])^2}{2 d}+\frac{B (a+i a \tan[c+d x])^3}{3 d}$$

Result (type 3, 883 leaves):

$$\left(\text{Cos}[c+d\,x]^4\left(A\,\text{Cos}\left[\frac{3\,c}{2}\right]-\mathbb{i}\,B\,\text{Cos}\left[\frac{3\,c}{2}\right]-\mathbb{i}\,A\,\text{Sin}\left[\frac{3\,c}{2}\right]-B\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(-2\,\mathbb{i}\,\text{Cos}\left[\frac{3\,c}{2}\right]\text{Log}\left[\text{Cos}[c+d\,x]^2\right]-2\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\text{Sin}\left[\frac{3\,c}{2}\right]\right)\right.$$
$$\left.(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^2\,(3\,A\,\text{Cos}[c]-9\,\mathbb{i}\,B\,\text{Cos}[c]+2\,B\,\text{Sin}[c])\left(-\frac{1}{6}\,\mathbb{i}\,\text{Cos}[3\,c]-\frac{1}{6}\,\text{Sin}[3\,c]\right)(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\frac{(A-\mathbb{i}\,B)\,\text{Cos}[c+d\,x]^4\,(4\,d\,x\,\text{Cos}[3\,c]-4\,\mathbb{i}\,d\,x\,\text{Sin}[3\,c])\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}-$$
$$\frac{\mathbb{i}\,B\,\text{Cos}[c+d\,x]\left(\frac{1}{3}\,\text{Cos}[3\,c]-\frac{1}{3}\,\mathbb{i}\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\left(\text{Cos}[c+d\,x]^3\left(\frac{1}{3}\,\text{Cos}[3\,c]-\frac{1}{3}\,\mathbb{i}\,\text{Sin}[3\,c]\right)(-9\,A\,\text{Sin}[d\,x]+13\,\mathbb{i}\,B\,\text{Sin}[d\,x])\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\frac{1}{(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$x\,\text{Cos}[c+d\,x]^4\left(-2\,A\,\text{Cos}[c]+2\,\mathbb{i}\,B\,\text{Cos}[c]+2\,A\,\text{Cos}[c]^3-2\,\mathbb{i}\,B\,\text{Cos}[c]^3+4\,\mathbb{i}\,A\,\text{Sin}[c]+4\,B\,\text{Sin}[c]-8\,\mathbb{i}\,A\,\text{Cos}[c]^2\,\text{Sin}[c]-8\,B\,\text{Cos}[c]^2\,\text{Sin}[c]-\right.$$
$$12\,A\,\text{Cos}[c]\,\text{Sin}[c]^2+12\,\mathbb{i}\,B\,\text{Cos}[c]\,\text{Sin}[c]^2+8\,\mathbb{i}\,A\,\text{Sin}[c]^3+8\,B\,\text{Sin}[c]^3+2\,A\,\text{Sin}[c]\,\text{Tan}[c]-2\,\mathbb{i}\,B\,\text{Sin}[c]\,\text{Tan}[c]+$$
$$\left.2\,A\,\text{Sin}[c]^3\,\text{Tan}[c]-2\,\mathbb{i}\,B\,\text{Sin}[c]^3\,\text{Tan}[c]+\mathbb{i}\,(A-\mathbb{i}\,B)\,(4\,\text{Cos}[3\,c]-4\,\mathbb{i}\,\text{Sin}[3\,c])\,\text{Tan}[c]\right)(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 20: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 107 leaves, 6 steps) :

$$4\,a^3\,(\mathbb{i}\,A+B)\,x+\frac{a^3\,(3\,A-4\,\mathbb{i}\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^3\,A\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+\frac{\mathbb{i}\,a\,B\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^2}{2\,d}-\frac{(A-2\,\mathbb{i}\,B)\left(a^3+\mathbb{i}\,a^3\,\text{Tan}[c+d\,x]\right)}{d}$$

Result (type 3, 931 leaves) :

$$\frac{A\,\text{Cos}[3\,c]\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$

$$\left(\text{Cos}[c+d\,x]^4\left(3\,A\,\text{Cos}\left[\frac{3\,c}{2}\right]-4\,i\,B\,\text{Cos}\left[\frac{3\,c}{2}\right]-3\,i\,A\,\text{Sin}\left[\frac{3\,c}{2}\right]-4\,B\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(\frac{1}{2}\,\text{Cos}\left[\frac{3\,c}{2}\right]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]-\frac{1}{2}\,i\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\right.$$
$$\left.(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)-$$

$$\frac{i\,A\,\text{Cos}[c+d\,x]^4\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]\,\text{Sin}[3\,c]\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{2\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$

$$\frac{\text{Cos}[c+d\,x]^2\left(-\frac{1}{2}\,i\,B\,\text{Cos}[3\,c]-\frac{1}{2}\,B\,\text{Sin}[3\,c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$

$$\frac{(i\,A+B)\,\text{Cos}[c+d\,x]^4\,(4\,d\,x\,\text{Cos}[3\,c]-4\,i\,d\,x\,\text{Sin}[3\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$

$$\left(\text{Cos}[c+d\,x]^3\,(\text{Cos}[3\,c]-i\,\text{Sin}[3\,c])\,(-i\,A\,\text{Sin}[d\,x]-3\,B\,\text{Sin}[d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$

$$\frac{1}{(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\,x\,\text{Cos}[c+d\,x]^4\left(-\frac{1}{2}\,i\,A\,\text{Cos}[c]-2\,B\,\text{Cos}[c]+\frac{7}{2}\,i\,A\,\text{Cos}[c]^3+2\,B\,\text{Cos}[c]^3-\right.$$
$$\frac{1}{2}\,A\,\text{Cos}[c]\,\text{Cot}[c]-\frac{1}{2}\,A\,\text{Cos}[c]^3\,\text{Cot}[c]-\frac{5}{2}\,A\,\text{Sin}[c]+4\,i\,B\,\text{Sin}[c]+9\,A\,\text{Cos}[c]^2\,\text{Sin}[c]-8\,i\,B\,\text{Cos}[c]^2\,\text{Sin}[c]-11\,i\,A\,\text{Cos}[c]\,\text{Sin}[c]^2-$$
$$12\,B\,\text{Cos}[c]\,\text{Sin}[c]^2-\frac{13}{2}\,A\,\text{Sin}[c]^3+8\,i\,B\,\text{Sin}[c]^3+(-A+2\,i\,B+2\,A\,\text{Cos}[2\,c]-2\,i\,B\,\text{Cos}[2\,c])\,\text{Csc}[c]\,\text{Sec}[c]\,(\text{Cos}[3\,c]-i\,\text{Sin}[3\,c])+$$
$$\left.\frac{3}{2}\,i\,A\,\text{Sin}[c]\,\text{Tan}[c]+2\,B\,\text{Sin}[c]\,\text{Tan}[c]+\frac{3}{2}\,i\,A\,\text{Sin}[c]^3\,\text{Tan}[c]+2\,B\,\text{Sin}[c]^3\,\text{Tan}[c]\right)(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 21: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 116 leaves, 6 steps) :

$$-4\,a^3\,(A-i\,B)\,x+\frac{a^3\,(i\,A+3\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^3\,(3\,i\,A+B)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-$$
$$\frac{a\,A\,\text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{d}+\frac{(i\,A-B)\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{d}$$

Result (type 3, 291 leaves) :

$$\frac{1}{16\,d} a^3 \operatorname{Csc}[c] \operatorname{Csc}[c+d x] \operatorname{Sec}[c] \operatorname{Sec}[c+d x] \Big(14 A d x \operatorname{Cos}[4 c+2 d x] - 10 \mathrm{i} B d x \operatorname{Cos}[4 c+2 d x] - \mathrm{i} A \operatorname{Cos}[4 c+2 d x] \operatorname{Log}\big[\operatorname{Cos}[c+d x]^2\big] - 3 B \operatorname{Cos}[4 c+2 d x] \operatorname{Log}\big[\operatorname{Cos}[c+d x]^2\big] - 3 \mathrm{i} A \operatorname{Cos}[4 c+2 d x] \operatorname{Log}\big[\operatorname{Sin}[c+d x]^2\big] - B \operatorname{Cos}[4 c+2 d x] \operatorname{Log}\big[\operatorname{Sin}[c+d x]^2\big] + \operatorname{Cos}[2 d x] \Big(2 (-7 A+5 \mathrm{i} B) d x + (\mathrm{i} A+3 B) \operatorname{Log}\big[\operatorname{Cos}[c+d x]^2\big] + (3 \mathrm{i} A+B) \operatorname{Log}\big[\operatorname{Sin}[c+d x]^2\big]\Big) - 4 A \operatorname{Sin}[2 c] - 4 \mathrm{i} B \operatorname{Sin}[2 c] + 4 A \operatorname{Sin}[2 d x] - 4 \mathrm{i} B \operatorname{Sin}[2 d x] + 4 A \operatorname{Sin}[2 (c+d x)] + 4 \mathrm{i} B \operatorname{Sin}[2 (c+d x)] + 4 (3 A-\mathrm{i} B) \operatorname{ArcTan}[\operatorname{Tan}[4 c+d x]] \operatorname{Sin}[2 c] \operatorname{Sin}[2 (c+d x)]\Big)$$

- **Problem 22: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^3 (a+\mathrm{i} a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])\, dx$$

Optimal (type 3, 123 leaves, 6 steps):

$$-4 a^3 (\mathrm{i} A+B) x + \frac{\mathrm{i} a^3 B \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d} - \frac{a^3 (4 A-3 \mathrm{i} B) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d} - \frac{a A \operatorname{Cot}[c+d x]^2 (a+\mathrm{i} a \operatorname{Tan}[c+d x])^2}{2 d} - \frac{(2 \mathrm{i} A+B) \operatorname{Cot}[c+d x] \left(a^3+\mathrm{i} a^3 \operatorname{Tan}[c+d x]\right)}{d}$$

Result (type 3, 1010 leaves):

$$a^3 \left(\frac{(i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(-\frac{1}{2} A \text{Cos}[3 c] + \frac{1}{2} i A \text{Sin}[3 c]\right) \text{Sin}[c + d x]^2}{d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} + \right.$$

$$\left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] \left(\frac{1}{2} \text{Cos}[3 c] - \frac{1}{2} i \text{Sin}[3 c]\right) (3 i A \text{Sin}[d x] + B \text{Sin}[d x]) \text{Sin}[c + d x]^3\right) \Big/$$

$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$

$$\frac{i B \text{Cos}[3 c] (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Log}\left[\text{Cos}[c + d x]^2\right] \text{Sin}[c + d x]^4}{2 d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} +$$

$$\left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(4 A \text{Cos}\left[\frac{3 c}{2}\right] - 3 i B \text{Cos}\left[\frac{3 c}{2}\right] - 4 i A \text{Sin}\left[\frac{3 c}{2}\right] - 3 B \text{Sin}\left[\frac{3 c}{2}\right]\right)\right.$$

$$\left.\left(i \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Cos}\left[\frac{3 c}{2}\right] + \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c + d x]^4\right) \Big/$$

$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \Big((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x])$$

$$\left(4 A \text{Cos}\left[\frac{3 c}{2}\right] - 3 i B \text{Cos}\left[\frac{3 c}{2}\right] - 4 i A \text{Sin}\left[\frac{3 c}{2}\right] - 3 B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(-\frac{1}{2} \text{Cos}\left[\frac{3 c}{2}\right] \text{Log}\left[\text{Sin}[c + d x]^2\right] + \frac{1}{2} i \text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}\left[\frac{3 c}{2}\right]\right)$$

$$\left.\text{Sin}[c + d x]^4\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$

$$\frac{B (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Log}\left[\text{Cos}[c + d x]^2\right] \text{Sin}[3 c] \text{Sin}[c + d x]^4}{2 d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} +$$

$$\frac{(A - i B) (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) (-4 i d x \text{Cos}[3 c] - 4 d x \text{Sin}[3 c]) \text{Sin}[c + d x]^4}{d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} +$$

$$\frac{1}{(\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])}$$

$$x (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Sin}[c + d x]^4 \left(\frac{1}{2} B \text{Cos}[c] - 16 i A \text{Cos}[c]^3 - \frac{25}{2} B \text{Cos}[c]^3 + 4 A \text{Cos}[c]^3 \text{Cot}[c] - 3 i B \text{Cos}[c]^3 \text{Cot}[c] - \right.$$

$$i B \text{Sin}[c] - 24 A \text{Cos}[c]^2 \text{Sin}[c] + 20 i B \text{Cos}[c]^2 \text{Sin}[c] + 16 i A \text{Cos}[c] \text{Sin}[c]^2 + 15 B \text{Cos}[c] \text{Sin}[c]^2 + 4 A \text{Sin}[c]^3 - 5 i B \text{Sin}[c]^3 +$$

$$\left.\left.(2 A - i B + 2 A \text{Cos}[2 c] - 2 i B \text{Cos}[2 c]) \text{Csc}[c] \text{Sec}[c] (-\text{Cos}[3 c] + i \text{Sin}[3 c]) - \frac{1}{2} B \text{Sin}[c] \text{Tan}[c] - \frac{1}{2} B \text{Sin}[c]^3 \text{Tan}[c]\right)\right)$$

Problem 23: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c + d x]^4 (a + i a \text{Tan}[c + d x])^3 (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 134 leaves, 5 steps) :

$$4 a^3 (A - i B) x + \frac{a^3 (17 A - 15 i B) \text{Cot}[c + d x]}{6 d} - \frac{4 a^3 (i A + B) \text{Log}[\text{Sin}[c + d x]]}{d} - \frac{a A \text{Cot}[c + d x]^3 (a + i a \text{Tan}[c + d x])^2}{3 d} - \frac{(5 i A + 3 B) \text{Cot}[c + d x]^2 \left(a^3 + i a^3 \text{Tan}[c + d x]\right)}{6 d}$$

Result (type 3, 911 leaves):

$$a^3 \left(\left(A (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] \left(\frac{1}{6} \text{Cos}[3 c] - \frac{1}{6} i \text{Sin}[3 c]\right) \text{Sin}[d x] \text{Sin}[c + d x]\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] (-2 A \text{Cos}[c] - 9 i A \text{Sin}[c] - 3 B \text{Sin}[c]) \left(\frac{1}{12} \text{Cos}[3 c] - \frac{1}{12} i \text{Sin}[3 c]\right) \text{Sin}[c + d x]^2\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] \left(\frac{1}{6} \text{Cos}[3 c] - \frac{1}{6} i \text{Sin}[3 c]\right) (-13 A \text{Sin}[d x] + 9 i B \text{Sin}[d x]) \text{Sin}[c + d x]^3\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(A \text{Cos}\left[\frac{3 c}{2}\right] - i B \text{Cos}\left[\frac{3 c}{2}\right] - i A \text{Sin}\left[\frac{3 c}{2}\right] - B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(-4 \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Cos}\left[\frac{3 c}{2}\right] + 4 i \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c + d x]^4\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(A \text{Cos}\left[\frac{3 c}{2}\right] - i B \text{Cos}\left[\frac{3 c}{2}\right] - i A \text{Sin}\left[\frac{3 c}{2}\right] - B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(-2 i \text{Cos}\left[\frac{3 c}{2}\right] \text{Log}\left[\text{Sin}[c + d x]^2\right] - 2 \text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c + d x]^4\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \frac{1}{(\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} x (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(16 A \text{Cos}[c]^3 - 16 i B \text{Cos}[c]^3 + 4 i A \text{Cos}[c]^3 \text{Cot}[c] + 4 B \text{Cos}[c]^3 \text{Cot}[c] - 24 i A \text{Cos}[c]^2 \text{Sin}[c] - 24 B \text{Cos}[c]^2 \text{Sin}[c] - 16 A \text{Cos}[c] \text{Sin}[c]^2 + 16 i B \text{Cos}[c] \text{Sin}[c]^2 + 4 i A \text{Sin}[c]^3 + 4 B \text{Sin}[c]^3 - i (A - i B) \text{Cot}[c] (4 \text{Cos}[3 c] - 4 i \text{Sin}[3 c])\right) \text{Sin}[c + d x]^4 + \frac{(A - i B) (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) (4 d x \text{Cos}[3 c] - 4 i d x \text{Sin}[3 c]) \text{Sin}[c + d x]^4}{d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} \right)$$

- **Problem 24: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c + d x]^5 (a + i a \text{Tan}[c + d x])^3 (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 157 leaves, 6 steps):

$$4 a^3 (i A + B) x + \frac{4 a^3 (i A + B) \text{Cot}[c + d x]}{d} + \frac{a^3 (15 A - 14 i B) \text{Cot}[c + d x]^2}{12 d} + \frac{4 a^3 (A - i B) \text{Log}[\text{Sin}[c + d x]]}{d} - \frac{a A \text{Cot}[c + d x]^4 (a + i a \text{Tan}[c + d x])^2}{4 d} - \frac{(3 i A + 2 B) \text{Cot}[c + d x]^3 \left(a^3 + i a^3 \text{Tan}[c + d x]\right)}{6 d}$$

Result (type 3, 1007 leaves) :

$$a^3 \left(\frac{(i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(-\frac{1}{4} A \text{Cos}[3 c] + \frac{1}{4} i A \text{Sin}[3 c]\right)}{d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] \left(\frac{1}{6} \text{Cos}[3 c] - \frac{1}{6} i \text{Sin}[3 c]\right) (3 i A \text{Sin}[d x] + B \text{Sin}[d x]) \text{Sin}[c + d x]\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] (-6 i A \text{Cos}[c] - 2 B \text{Cos}[c] + 15 A \text{Sin}[c] - 9 i B \text{Sin}[c]) \left(\frac{1}{12} \text{Cos}[3 c] - \frac{1}{12} i \text{Sin}[3 c]\right) \text{Sin}[c + d x]^2\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \text{Csc}\left[\frac{c}{2}\right] \text{Sec}\left[\frac{c}{2}\right] \left(\frac{1}{6} \text{Cos}[3 c] - \frac{1}{6} i \text{Sin}[3 c]\right) (-15 i A \text{Sin}[d x] - 13 B \text{Sin}[d x]) \text{Sin}[c + d x]^3\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(A \text{Cos}\left[\frac{3 c}{2}\right] - i B \text{Cos}\left[\frac{3 c}{2}\right] - i A \text{Sin}\left[\frac{3 c}{2}\right] - B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(-4 i \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Cos}\left[\frac{3 c}{2}\right] - 4 \text{ArcTan}[\text{Tan}[4 c + d x]] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c + d x]^4\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(A \text{Cos}\left[\frac{3 c}{2}\right] - i B \text{Cos}\left[\frac{3 c}{2}\right] - i A \text{Sin}\left[\frac{3 c}{2}\right] - B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(2 \text{Cos}\left[\frac{3 c}{2}\right] \text{Log}\left[\text{Sin}[c + d x]^2\right] - 2 i \text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c + d x]^4\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \frac{1}{(\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} x (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) \left(16 i A \text{Cos}[c]^3 + 16 B \text{Cos}[c]^3 - 4 A \text{Cos}[c]^3 \text{Cot}[c] + 4 i B \text{Cos}[c]^3 \text{Cot}[c] + 24 A \text{Cos}[c]^2 \text{Sin}[c] - 24 i B \text{Cos}[c]^2 \text{Sin}[c] - 16 i A \text{Cos}[c] \text{Sin}[c]^2 - 16 B \text{Cos}[c] \text{Sin}[c]^2 - 4 A \text{Sin}[c]^3 + 4 i B \text{Sin}[c]^3 + (A - i B) \text{Cot}[c] (4 \text{Cos}[3 c] - 4 i \text{Sin}[3 c])\right) \text{Sin}[c + d x]^4 + \frac{(i A + B) (i + \text{Cot}[c + d x])^3 (B + A \text{Cot}[c + d x]) (4 d x \text{Cos}[3 c] - 4 i d x \text{Sin}[3 c]) \text{Sin}[c + d x]^4}{d (\text{Cos}[d x] + i \text{Sin}[d x])^3 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} \right)$$

- **Problem 25: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c + d x]^6 (a + i a \text{Tan}[c + d x])^3 (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 180 leaves, 7 steps):

$$-4 a^3 (A-i B) x-\frac{4 a^3 (A-i B) \text{Cot}[c+d x]}{d}+\frac{2 a^3 (i A+B) \text{Cot}[c+d x]^2}{d}+\frac{a^3 (47 A-45 i B) \text{Cot}[c+d x]^3}{60 d}+\frac{4 a^3 (i A+B) \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{a A \text{Cot}[c+d x]^5 (a+i a \text{Tan}[c+d x])^2}{5 d}-\frac{(7 i A+5 B) \text{Cot}[c+d x]^4 \left(a^3+i a^3 \text{Tan}[c+d x]\right)}{20 d}$$

Result (type 3, 943 leaves):

$$a^3 \left(\left((i+\text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \left(i A \text{Cos}\left[\frac{3 c}{2}\right]+B \text{Cos}\left[\frac{3 c}{2}\right]+A \text{Sin}\left[\frac{3 c}{2}\right]-i B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(-4 i \text{ArcTan}[\text{Tan}[4 c+d x]] \text{Cos}\left[\frac{3 c}{2}\right]-4 \text{ArcTan}[\text{Tan}[4 c+d x]] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c+d x]^4\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+\left((i+\text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \left(i A \text{Cos}\left[\frac{3 c}{2}\right]+B \text{Cos}\left[\frac{3 c}{2}\right]+A \text{Sin}\left[\frac{3 c}{2}\right]-i B \text{Sin}\left[\frac{3 c}{2}\right]\right) \left(2 \text{Cos}\left[\frac{3 c}{2}\right] \text{Log}\left[\text{Sin}[c+d x]^2\right]-2 i \text{Log}\left[\text{Sin}[c+d x]^2\right] \text{Sin}\left[\frac{3 c}{2}\right]\right) \text{Sin}[c+d x]^4\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+\frac{1}{(\text{Cos}[d x]+i \text{Sin}[d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])} x (i+\text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \left(-16 A \text{Cos}[c]^3+16 i B \text{Cos}[c]^3-4 i A \text{Cos}[c]^3 \text{Cot}[c]-4 B \text{Cos}[c]^3 \text{Cot}[c]+24 i A \text{Cos}[c]^2 \text{Sin}[c]+24 B \text{Cos}[c]^2 \text{Sin}[c]+16 A \text{Cos}[c] \text{Sin}[c]^2-16 i B \text{Cos}[c] \text{Sin}[c]^2-4 i A \text{Sin}[c]^3-4 B \text{Sin}[c]^3+(i A+B) \text{Cot}[c] (4 \text{Cos}[3 c]-4 i \text{Sin}[3 c])\right) \text{Sin}[c+d x]^4+\frac{1}{d (\text{Cos}[d x]+i \text{Sin}[d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])} (i+\text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \text{Csc}[c] \text{Csc}[c+d x] \left(\frac{1}{240} \text{Cos}[3 c]-\frac{1}{240} i \text{Sin}[3 c]\right) (225 i A \text{Cos}[d x]+195 B \text{Cos}[d x]-300 A d x \text{Cos}[d x]+300 i B d x \text{Cos}[d x]-225 i A \text{Cos}[2 c+d x]-195 B \text{Cos}[2 c+d x]+300 A d x \text{Cos}[2 c+d x]-300 i B d x \text{Cos}[2 c+d x]-105 i A \text{Cos}[2 c+3 d x]-75 B \text{Cos}[2 c+3 d x]+150 A d x \text{Cos}[2 c+3 d x]-150 i B d x \text{Cos}[2 c+3 d x]+105 i A \text{Cos}[4 c+3 d x]+75 B \text{Cos}[4 c+3 d x]-150 A d x \text{Cos}[4 c+3 d x]+150 i B d x \text{Cos}[4 c+3 d x]-30 A d x \text{Cos}[4 c+5 d x]+30 i B d x \text{Cos}[4 c+5 d x]+30 A d x \text{Cos}[6 c+5 d x]-30 i B d x \text{Cos}[6 c+5 d x]+470 A \text{Sin}[d x]-420 i B \text{Sin}[d x]+360 A \text{Sin}[2 c+d x]-330 i B \text{Sin}[2 c+d x]-280 A \text{Sin}[2 c+3 d x]+270 i B \text{Sin}[2 c+3 d x]-135 A \text{Sin}[4 c+3 d x]+105 i B \text{Sin}[4 c+3 d x]+83 A \text{Sin}[4 c+5 d x]-75 i B \text{Sin}[4 c+5 d x])\right)$$

Problem 26: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^2 (a+i a \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 225 leaves, 7 steps):

$$-8 a^4 (A-i B) x+\frac{8 a^4 (i A+B) \text{Log}[\text{Cos}[c+d x]]}{d}+\frac{8 a^4 (A-i B) \text{Tan}[c+d x]}{d}+\frac{4 a^4 (i A+B) \text{Tan}[c+d x]^2}{d}-\frac{a^4 (92 A-93 i B) \text{Tan}[c+d x]^3}{60 d}+\frac{i a B \text{Tan}[c+d x]^3 (a+i a \text{Tan}[c+d x])^3}{6 d}-\frac{(2 A-3 i B) \text{Tan}[c+d x]^3 \left(a^2+i a^2 \text{Tan}[c+d x]\right)^2}{10 d}-\frac{(12 A-13 i B) \text{Tan}[c+d x]^3 \left(a^4+i a^4 \text{Tan}[c+d x]\right)}{20 d}$$

Result (type 3, 951 leaves) :

$$\left(\mathrm{Cos}[c+d\,x]^5\,(\mathrm{i}\,A\,\mathrm{Cos}[2\,c]+B\,\mathrm{Cos}[2\,c]+A\,\mathrm{Sin}[2\,c]-\mathrm{i}\,B\,\mathrm{Sin}[2\,c])\right.$$
$$\left(4\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]-4\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[2\,c]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)+\frac{1}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$
$$\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\,\left(\frac{1}{240}\,\mathrm{Cos}[4\,c]-\frac{1}{240}\,\mathrm{i}\,\mathrm{Sin}[4\,c]\right)\,(420\,\mathrm{i}\,A\,\mathrm{Cos}[c]+490\,B\,\mathrm{Cos}[c]-600\,A\,d\,x\,\mathrm{Cos}[c]+600\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[c]+300\,\mathrm{i}\,A\,\mathrm{Cos}[c+2\,d\,x]+$$
$$345\,B\,\mathrm{Cos}[c+2\,d\,x]-450\,A\,d\,x\,\mathrm{Cos}[c+2\,d\,x]+450\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[c+2\,d\,x]+300\,\mathrm{i}\,A\,\mathrm{Cos}[3\,c+2\,d\,x]+345\,B\,\mathrm{Cos}[3\,c+2\,d\,x]-$$
$$450\,A\,d\,x\,\mathrm{Cos}[3\,c+2\,d\,x]+450\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[3\,c+2\,d\,x]+90\,\mathrm{i}\,A\,\mathrm{Cos}[3\,c+4\,d\,x]+120\,B\,\mathrm{Cos}[3\,c+4\,d\,x]-180\,A\,d\,x\,\mathrm{Cos}[3\,c+4\,d\,x]+$$
$$180\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[3\,c+4\,d\,x]+90\,\mathrm{i}\,A\,\mathrm{Cos}[5\,c+4\,d\,x]+120\,B\,\mathrm{Cos}[5\,c+4\,d\,x]-180\,A\,d\,x\,\mathrm{Cos}[5\,c+4\,d\,x]+180\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[5\,c+4\,d\,x]-$$
$$30\,A\,d\,x\,\mathrm{Cos}[5\,c+6\,d\,x]+30\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[5\,c+6\,d\,x]-30\,A\,d\,x\,\mathrm{Cos}[7\,c+6\,d\,x]+30\,\mathrm{i}\,B\,d\,x\,\mathrm{Cos}[7\,c+6\,d\,x]-790\,A\,\mathrm{Sin}[c]+$$
$$860\,\mathrm{i}\,B\,\mathrm{Sin}[c]+720\,A\,\mathrm{Sin}[c+2\,d\,x]-780\,\mathrm{i}\,B\,\mathrm{Sin}[c+2\,d\,x]-465\,A\,\mathrm{Sin}[3\,c+2\,d\,x]+510\,\mathrm{i}\,B\,\mathrm{Sin}[3\,c+2\,d\,x]+354\,A\,\mathrm{Sin}[3\,c+4\,d\,x]-$$
$$366\,\mathrm{i}\,B\,\mathrm{Sin}[3\,c+4\,d\,x]-120\,A\,\mathrm{Sin}[5\,c+4\,d\,x]+150\,\mathrm{i}\,B\,\mathrm{Sin}[5\,c+4\,d\,x]+79\,A\,\mathrm{Sin}[5\,c+6\,d\,x]-86\,\mathrm{i}\,B\,\mathrm{Sin}[5\,c+6\,d\,x])$$
$$(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])+\frac{1}{(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$
$$x\,\mathrm{Cos}[c+d\,x]^5\,\left(4\,A\,\mathrm{Cos}[c]^2-4\,\mathrm{i}\,B\,\mathrm{Cos}[c]^2-4\,A\,\mathrm{Cos}[c]^4+4\,\mathrm{i}\,B\,\mathrm{Cos}[c]^4-12\,\mathrm{i}\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]-12\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]+\right.$$
$$20\,\mathrm{i}\,A\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]+20\,B\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]-12\,A\,\mathrm{Sin}[c]^2+12\,\mathrm{i}\,B\,\mathrm{Sin}[c]^2+40\,A\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2-40\,\mathrm{i}\,B\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2-$$
$$40\,\mathrm{i}\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3-40\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3-20\,A\,\mathrm{Sin}[c]^4+20\,\mathrm{i}\,B\,\mathrm{Sin}[c]^4+4\,\mathrm{i}\,A\,\mathrm{Sin}[c]^2\,\mathrm{Tan}[c]+4\,B\,\mathrm{Sin}[c]^2\,\mathrm{Tan}[c]+$$
$$\left.4\,\mathrm{i}\,A\,\mathrm{Sin}[c]^4\,\mathrm{Tan}[c]+4\,B\,\mathrm{Sin}[c]^4\,\mathrm{Tan}[c]-\mathrm{i}\,(A-\mathrm{i}\,B)\,(8\,\mathrm{Cos}[4\,c]-8\,\mathrm{i}\,\mathrm{Sin}[4\,c])\,\mathrm{Tan}[c]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])$$

- **Problem 27: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[c+d\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 168 leaves, 6 steps) :

$$-8\,a^4\,(\mathrm{i}\,A+B)\,x-\frac{8\,a^4\,(A-\mathrm{i}\,B)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}+\frac{4\,a^4\,(\mathrm{i}\,A+B)\,\mathrm{Tan}[c+d\,x]}{d}+$$
$$\frac{a\,(A-\mathrm{i}\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^3}{3\,d}+\frac{A\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4}{4\,d}-\frac{\mathrm{i}\,B\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^5}{5\,a\,d}+\frac{(A-\mathrm{i}\,B)\,\left(a^2+\mathrm{i}\,a^2\,\mathrm{Tan}[c+d\,x]\right)^2}{d}$$

Result (type 3, 879 leaves) :

$$\left(\text{Cos}[c+d x]^5 (A \text{Cos}[2 c]-i B \text{Cos}[2 c]-i A \text{Sin}[2 c]-B \text{Sin}[2 c]) \left(-4 \text{Cos}[2 c] \text{Log}\left[\text{Cos}[c+d x]^2\right]+4 i \text{Log}\left[\text{Cos}[c+d x]^2\right] \text{Sin}[2 c]\right) (a+i a \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+\frac{1}{d (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}$$

$$\text{Sec}[c] \left(\frac{1}{120} \text{Cos}[4 c]-\frac{1}{120} i \text{Sin}[4 c]\right) (-165 A \text{Cos}[d x]+210 i B \text{Cos}[d x]-300 i A d x \text{Cos}[d x]-300 B d x \text{Cos}[d x]- 165 A \text{Cos}[2 c+d x]+210 i B \text{Cos}[2 c+d x]-300 i A d x \text{Cos}[2 c+d x]-300 B d x \text{Cos}[2 c+d x]-60 A \text{Cos}[2 c+3 d x]+ 90 i B \text{Cos}[2 c+3 d x]-150 i A d x \text{Cos}[2 c+3 d x]-150 B d x \text{Cos}[2 c+3 d x]-60 A \text{Cos}[4 c+3 d x]+90 i B \text{Cos}[4 c+3 d x]- 150 i A d x \text{Cos}[4 c+3 d x]-150 B d x \text{Cos}[4 c+3 d x]-30 i A d x \text{Cos}[4 c+5 d x]-30 B d x \text{Cos}[4 c+5 d x]-30 i A d x \text{Cos}[6 c+5 d x]- 30 B d x \text{Cos}[6 c+5 d x]+400 i A \text{Sin}[d x]+445 B \text{Sin}[d x]-300 i A \text{Sin}[2 c+d x]-345 B \text{Sin}[2 c+d x]+260 i A \text{Sin}[2 c+3 d x]+ 275 B \text{Sin}[2 c+3 d x]-90 i A \text{Sin}[4 c+3 d x]-120 B \text{Sin}[4 c+3 d x]+70 i A \text{Sin}[4 c+5 d x]+79 B \text{Sin}[4 c+5 d x])$$

$$(a+i a \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])+\frac{1}{(\text{Cos}[d x]+i \text{Sin}[d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}$$

$$x \text{Cos}[c+d x]^5 \left(4 i A \text{Cos}[c]^2+4 B \text{Cos}[c]^2-4 i A \text{Cos}[c]^4-4 B \text{Cos}[c]^4+12 A \text{Cos}[c] \text{Sin}[c]-12 i B \text{Cos}[c] \text{Sin}[c]- 20 A \text{Cos}[c]^3 \text{Sin}[c]+20 i B \text{Cos}[c]^3 \text{Sin}[c]-12 i A \text{Sin}[c]^2-12 B \text{Sin}[c]^2+40 i A \text{Cos}[c]^2 \text{Sin}[c]^2+40 B \text{Cos}[c]^2 \text{Sin}[c]^2+ 40 A \text{Cos}[c] \text{Sin}[c]^3-40 i B \text{Cos}[c] \text{Sin}[c]^3-20 i A \text{Sin}[c]^4-20 B \text{Sin}[c]^4-4 A \text{Sin}[c]^2 \text{Tan}[c]+4 i B \text{Sin}[c]^2 \text{Tan}[c]- 4 A \text{Sin}[c]^4 \text{Tan}[c]+4 i B \text{Sin}[c]^4 \text{Tan}[c]+(A-i B) (8 \text{Cos}[4 c]-8 i \text{Sin}[4 c]) \text{Tan}[c]\right) (a+i a \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])$$

Problem 28: Result more than twice size of optimal antiderivative.

$$\int (a+i a \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 140 leaves, 5 steps):

$$8 a^4 (A-i B) x-\frac{8 a^4 (i A+B) \text{Log}[\text{Cos}[c+d x]]}{d}-\frac{4 a^4 (A-i B) \text{Tan}[c+d x]}{d}+\frac{a (i A+B) (a+i a \text{Tan}[c+d x])^3}{3 d}+\frac{B (a+i a \text{Tan}[c+d x])^4}{4 d}+\frac{(i A+B) \left(a^2+i a^2 \text{Tan}[c+d x]\right)^2}{d}$$

Result (type 3, 937 leaves):

$$\left(\text{Cos}[c+d\,x]^5\,(A\,\text{Cos}[2\,c]-i\,B\,\text{Cos}[2\,c]-i\,A\,\text{Sin}[2\,c]-B\,\text{Sin}[2\,c])\,\left(-4\,i\,\text{Cos}[2\,c]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]-4\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}[2\,c]\right)\right.$$
$$\left.(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^3\,\text{Sec}[c]\,(6\,A\,\text{Cos}[c]-12\,i\,B\,\text{Cos}[c]+i\,A\,\text{Sin}[c]+4\,B\,\text{Sin}[c])\,\left(-\frac{1}{3}\,i\,\text{Cos}[4\,c]-\frac{1}{3}\,\text{Sin}[4\,c]\right)\right.$$
$$\left.(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\frac{\text{Cos}[c+d\,x]\,\left(\frac{1}{4}\,B\,\text{Cos}[4\,c]-\frac{1}{4}\,i\,B\,\text{Sin}[4\,c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\frac{(A-i\,B)\,\text{Cos}[c+d\,x]^5\,(8\,d\,x\,\text{Cos}[4\,c]-8\,i\,d\,x\,\text{Sin}[4\,c])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\left(\text{Cos}[c+d\,x]^2\,\text{Sec}[c]\,\left(\frac{1}{3}\,\text{Cos}[4\,c]-\frac{1}{3}\,i\,\text{Sin}[4\,c]\right)\,(A\,\text{Sin}[d\,x]-4\,i\,B\,\text{Sin}[d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^4\,\text{Sec}[c]\,\left(-\frac{2}{3}\,\text{Cos}[4\,c]+\frac{2}{3}\,i\,\text{Sin}[4\,c]\right)\,(11\,A\,\text{Sin}[d\,x]-14\,i\,B\,\text{Sin}[d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+\frac{1}{(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$x\,\text{Cos}[c+d\,x]^5\,\left(-4\,A\,\text{Cos}[c]^2+4\,i\,B\,\text{Cos}[c]^2+4\,A\,\text{Cos}[c]^4-4\,i\,B\,\text{Cos}[c]^4+12\,i\,A\,\text{Cos}[c]\,\text{Sin}[c]+12\,B\,\text{Cos}[c]\,\text{Sin}[c]-\right.$$
$$20\,i\,A\,\text{Cos}[c]^3\,\text{Sin}[c]-20\,B\,\text{Cos}[c]^3\,\text{Sin}[c]+12\,A\,\text{Sin}[c]^2-12\,i\,B\,\text{Sin}[c]^2-40\,A\,\text{Cos}[c]^2\,\text{Sin}[c]^2+40\,i\,B\,\text{Cos}[c]^2\,\text{Sin}[c]^2+$$
$$40\,i\,A\,\text{Cos}[c]\,\text{Sin}[c]^3+40\,B\,\text{Cos}[c]\,\text{Sin}[c]^3+20\,A\,\text{Sin}[c]^4-20\,i\,B\,\text{Sin}[c]^4-4\,i\,A\,\text{Sin}[c]^2\,\text{Tan}[c]-4\,B\,\text{Sin}[c]^2\,\text{Tan}[c]-$$
$$\left.4\,i\,A\,\text{Sin}[c]^4\,\text{Tan}[c]-4\,B\,\text{Sin}[c]^4\,\text{Tan}[c]+(i\,A+B)\,(8\,\text{Cos}[4\,c]-8\,i\,\text{Sin}[4\,c])\,\text{Tan}[c]\right)\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 29: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 142 leaves, 7 steps):

$$8\,a^4\,(i\,A+B)\,x+\frac{a^4\,(7\,A-8\,i\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}+\frac{a^4\,A\,\text{Log}[\text{Sin}[c+d\,x]]}{d}+$$
$$\frac{i\,a\,B\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{3\,d}-\frac{(A-2\,i\,B)\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)^2}{2\,d}-\frac{(3\,A-4\,i\,B)\,\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}{d}$$

Result (type 3, 1060 leaves):

$$\frac{A\,\text{Cos}[4c]\,\text{Cos}[c+dx]^5\,\text{Log}\left[\text{Sin}[c+dx]^2\right]\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])}{2d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])}+$$

$$\left(\text{Cos}[c+dx]^5\,(7A\,\text{Cos}[2c]-8iB\,\text{Cos}[2c]-7iA\,\text{Sin}[2c]-8B\,\text{Sin}[2c])\left(\frac{1}{2}\text{Cos}[2c]\,\text{Log}\left[\text{Cos}[c+dx]^2\right]-\frac{1}{2}i\,\text{Log}\left[\text{Cos}[c+dx]^2\right]\text{Sin}[2c]\right)(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])\right)\Big/\left(d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)+$$

$$\left(\text{Cos}[c+dx]^3\,\text{Sec}[c]\,(3A\,\text{Cos}[c]-12iB\,\text{Cos}[c]+2B\,\text{Sin}[c])\left(\frac{1}{6}\text{Cos}[4c]-\frac{1}{6}i\,\text{Sin}[4c]\right)(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])\right)\Big/\left(d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)-$$

$$\frac{i\,A\,\text{Cos}[c+dx]^5\,\text{Log}\left[\text{Sin}[c+dx]^2\right]\text{Sin}[4c]\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])}{2d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])}+$$

$$\frac{(iA+B)\,\text{Cos}[c+dx]^5\,(8dx\,\text{Cos}[4c]-8idx\,\text{Sin}[4c])\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])}{d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])}+$$

$$\frac{B\,\text{Cos}[c+dx]^2\,\text{Sec}[c]\left(\frac{1}{3}\text{Cos}[4c]-\frac{1}{3}i\,\text{Sin}[4c]\right)\text{Sin}[dx]\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])}{d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])}+$$

$$\left(\text{Cos}[c+dx]^4\,\text{Sec}[c]\left(\frac{2}{3}\text{Cos}[4c]-\frac{2}{3}i\,\text{Sin}[4c]\right)(-6iA\,\text{Sin}[dx]-11B\,\text{Sin}[dx])\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])\right)\Big/\left(d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)+$$

$$\frac{1}{(\text{Cos}[dx]+i\,\text{Sin}[dx])^4\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])}x\,\text{Cos}[c+dx]^5\Bigg(-2iA\,\text{Cos}[c]^2-4B\,\text{Cos}[c]^2+6iA\,\text{Cos}[c]^4+4B\,\text{Cos}[c]^4-$$
$$\frac{1}{2}A\,\text{Cos}[c]^2\,\text{Cot}[c]-\frac{1}{2}A\,\text{Cos}[c]^4\,\text{Cot}[c]-9A\,\text{Cos}[c]\,\text{Sin}[c]+12iB\,\text{Cos}[c]\,\text{Sin}[c]+\frac{45}{2}A\,\text{Cos}[c]^3\,\text{Sin}[c]-20iB\,\text{Cos}[c]^3\,\text{Sin}[c]+$$
$$10iA\,\text{Sin}[c]^2+12B\,\text{Sin}[c]^2-40iA\,\text{Cos}[c]^2\,\text{Sin}[c]^2-40B\,\text{Cos}[c]^2\,\text{Sin}[c]^2-\frac{75}{2}A\,\text{Cos}[c]\,\text{Sin}[c]^3+40iB\,\text{Cos}[c]\,\text{Sin}[c]^3+$$
$$18iA\,\text{Sin}[c]^4+20B\,\text{Sin}[c]^4+(-3A+4iB+4A\,\text{Cos}[2c]-4iB\,\text{Cos}[2c])\,\text{Csc}[c]\,\text{Sec}[c]\,(\text{Cos}[4c]-i\,\text{Sin}[4c])+$$
$$\frac{7}{2}A\,\text{Sin}[c]^2\,\text{Tan}[c]-4iB\,\text{Sin}[c]^2\,\text{Tan}[c]+\frac{7}{2}A\,\text{Sin}[c]^4\,\text{Tan}[c]-4iB\,\text{Sin}[c]^4\,\text{Tan}[c]\Bigg)(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])$$

Problem 30: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+dx]^2\,(a+i\,a\,\text{Tan}[c+dx])^4\,(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 144 leaves, 7 steps) :

$$-8a^4\,(A-iB)\,x+\frac{a^4\,(4iA+7B)\,\text{Log}[\text{Cos}[c+dx]]}{d}+\frac{a^4\,(4iA+B)\,\text{Log}[\text{Sin}[c+dx]]}{d}-$$
$$\frac{a\,A\,\text{Cot}[c+dx]\,(a+i\,a\,\text{Tan}[c+dx])^3}{d}+\frac{(2iA-B)\left(a^2+i\,a^2\,\text{Tan}[c+dx]\right)^2}{2d}-\frac{3B\left(a^4+i\,a^4\,\text{Tan}[c+dx]\right)}{d}$$

Result (type 3, 1122 leaves):

$$a^4 \left(\frac{A\,(i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c]\,(\mathrm{Cos}[4\,c]-i\,\mathrm{Sin}[4\,c])\,\mathrm{Sin}[d\,x]\,\mathrm{Sin}[c+d\,x]^4}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])} + \right.$$
$$\Big((i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,(4\,i\,A\,\mathrm{Cos}[2\,c]+B\,\mathrm{Cos}[2\,c]+4\,A\,\mathrm{Sin}[2\,c]-i\,B\,\mathrm{Sin}[2\,c])$$
$$(-i\,\mathrm{ArcTan}[\mathrm{Tan}[5\,c+d\,x]]\,\mathrm{Cos}[2\,c]-\mathrm{ArcTan}[\mathrm{Tan}[5\,c+d\,x]]\,\mathrm{Sin}[2\,c])\,\mathrm{Sin}[c+d\,x]^5\Big)\Big/$$
$$\Big(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\Big) +$$
$$\Big((i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,(4\,i\,A\,\mathrm{Cos}[2\,c]+7\,B\,\mathrm{Cos}[2\,c]+4\,A\,\mathrm{Sin}[2\,c]-7\,i\,B\,\mathrm{Sin}[2\,c])$$
$$\left(\frac{1}{2}\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]-\frac{1}{2}\,i\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[2\,c]\right)\mathrm{Sin}[c+d\,x]^5\Big)\Big/$$
$$\Big(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\Big) + \Big((i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])$$
$$(4\,i\,A\,\mathrm{Cos}[2\,c]+B\,\mathrm{Cos}[2\,c]+4\,A\,\mathrm{Sin}[2\,c]-i\,B\,\mathrm{Sin}[2\,c])\left(\frac{1}{2}\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]-\frac{1}{2}\,i\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[2\,c]\right)\mathrm{Sin}[c+d\,x]^5\Big)\Big/$$
$$\Big(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\Big) +$$
$$\frac{(A-i\,B)\,(i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,(-8\,d\,x\,\mathrm{Cos}[4\,c]+8\,i\,d\,x\,\mathrm{Sin}[4\,c])\,\mathrm{Sin}[c+d\,x]^5}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])} +$$
$$\frac{1}{(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\,x\,(i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^5$$
$$\left(2\,A\,\mathrm{Cos}[c]^2-\frac{7}{2}\,i\,B\,\mathrm{Cos}[c]^2-22\,A\,\mathrm{Cos}[c]^4+\frac{17}{2}\,i\,B\,\mathrm{Cos}[c]^4-4\,i\,A\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c]-B\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c]-6\,i\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]-\right.$$
$$\frac{21}{2}\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]+50\,i\,A\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]+\frac{55}{2}\,B\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]-6\,A\,\mathrm{Sin}[c]^2+\frac{21}{2}\,i\,B\,\mathrm{Sin}[c]^2+60\,A\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2-$$
$$45\,i\,B\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2-40\,i\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3-40\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3-14\,A\,\mathrm{Sin}[c]^4+\frac{37}{2}\,i\,B\,\mathrm{Sin}[c]^4+(-3\,B+4\,i\,A\,\mathrm{Cos}[2\,c]+4\,B\,\mathrm{Cos}[2\,c])$$
$$\left.\mathrm{Csc}[c]\,\mathrm{Sec}[c]\,(\mathrm{Cos}[4\,c]-i\,\mathrm{Sin}[4\,c])+2\,i\,A\,\mathrm{Sin}[c]^2\,\mathrm{Tan}[c]+\frac{7}{2}\,B\,\mathrm{Sin}[c]^2\,\mathrm{Tan}[c]+2\,i\,A\,\mathrm{Sin}[c]^4\,\mathrm{Tan}[c]+\frac{7}{2}\,B\,\mathrm{Sin}[c]^4\,\mathrm{Tan}[c]\right) +$$
$$\Big((i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sec}[c]\,(\mathrm{Cos}[4\,c]-i\,\mathrm{Sin}[4\,c])\,(A\,\mathrm{Sin}[d\,x]-4\,i\,B\,\mathrm{Sin}[d\,x])\,\mathrm{Sin}[c+d\,x]^4\,\mathrm{Tan}[c+d\,x]\Big)\Big/$$
$$\Big(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\Big) +$$
$$\left.\frac{(i+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\left(\frac{1}{2}\,B\,\mathrm{Cos}[4\,c]-\frac{1}{2}\,i\,B\,\mathrm{Sin}[4\,c]\right)\mathrm{Sin}[c+d\,x]^3\,\mathrm{Tan}[c+d\,x]^2}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\right)$$

Problem 31: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^3\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 156 leaves, 7 steps):

$$-8\,a^4\,(i\,A+B)\,x-\frac{a^4\,(A-4\,i\,B)\,\text{Log}[\text{Cos}[c+d\,x]]}{d}-\frac{a^4\,(7\,A-4\,i\,B)\,\text{Log}[\text{Sin}[c+d\,x]]}{d}-$$

$$\frac{a\,A\,\text{Cot}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{2\,d}-\frac{(5\,i\,A+2\,B)\,\text{Cot}[c+d\,x]\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)^2}{2\,d}-\frac{3\,A\,\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}{d}$$

Result (type 3, 1116 leaves) :

$$a^4 \left(\frac{(\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) \left(-\frac{1}{2} A \mathrm{Cos}[4 c] + \frac{1}{2} \mathrm{i} A \mathrm{Sin}[4 c]\right) \mathrm{Sin}[c + d x]^3}{d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])} + \right.$$

$$\left((\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) \mathrm{Csc}[c] (\mathrm{Cos}[4 c] - \mathrm{i} \mathrm{Sin}[4 c]) (4 \mathrm{i} A \mathrm{Sin}[d x] + B \mathrm{Sin}[d x]) \mathrm{Sin}[c + d x]^4\right) /$$
$$\left(d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])\right) +$$

$$\left((\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) (7 A \mathrm{Cos}[2 c] - 4 \mathrm{i} B \mathrm{Cos}[2 c] - 7 \mathrm{i} A \mathrm{Sin}[2 c] - 4 B \mathrm{Sin}[2 c])\right.$$
$$\left.(\mathrm{i} \mathrm{ArcTan}[\mathrm{Tan}[5 c + d x]] \mathrm{Cos}[2 c] + \mathrm{ArcTan}[\mathrm{Tan}[5 c + d x]] \mathrm{Sin}[2 c]) \mathrm{Sin}[c + d x]^5\right) /$$
$$\left(d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])\right) + \left((\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x])\right.$$
$$(A \mathrm{Cos}[2 c] - 4 \mathrm{i} B \mathrm{Cos}[2 c] - \mathrm{i} A \mathrm{Sin}[2 c] - 4 B \mathrm{Sin}[2 c]) \left(-\frac{1}{2} \mathrm{Cos}[2 c] \mathrm{Log}\left[\mathrm{Cos}[c + d x]^2\right] + \frac{1}{2} \mathrm{i} \mathrm{Log}\left[\mathrm{Cos}[c + d x]^2\right] \mathrm{Sin}[2 c]\right)$$
$$\left.\mathrm{Sin}[c + d x]^5\right) / \left(d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])\right) +$$

$$\left((\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) (7 A \mathrm{Cos}[2 c] - 4 \mathrm{i} B \mathrm{Cos}[2 c] - 7 \mathrm{i} A \mathrm{Sin}[2 c] - 4 B \mathrm{Sin}[2 c])\right.$$
$$\left.\left(-\frac{1}{2} \mathrm{Cos}[2 c] \mathrm{Log}\left[\mathrm{Sin}[c + d x]^2\right] + \frac{1}{2} \mathrm{i} \mathrm{Log}\left[\mathrm{Sin}[c + d x]^2\right] \mathrm{Sin}[2 c]\right) \mathrm{Sin}[c + d x]^5\right) /$$
$$\left(d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])\right) +$$

$$\frac{(A - \mathrm{i} B) (\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) (-8 \mathrm{i} d x \mathrm{Cos}[4 c] - 8 d x \mathrm{Sin}[4 c]) \mathrm{Sin}[c + d x]^5}{d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])} +$$

$$\frac{1}{(\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])} x (\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) \mathrm{Sin}[c + d x]^5$$
$$\left(\frac{1}{2} \mathrm{i} A \mathrm{Cos}[c]^2 + 2 B \mathrm{Cos}[c]^2 - \frac{71}{2} \mathrm{i} A \mathrm{Cos}[c]^4 - 22 B \mathrm{Cos}[c]^4 + 7 A \mathrm{Cos}[c]^4 \mathrm{Cot}[c] - 4 \mathrm{i} B \mathrm{Cos}[c]^4 \mathrm{Cot}[c] + \frac{3}{2} A \mathrm{Cos}[c] \mathrm{Sin}[c] - \right.$$
$$6 \mathrm{i} B \mathrm{Cos}[c] \mathrm{Sin}[c] - \frac{145}{2} A \mathrm{Cos}[c]^3 \mathrm{Sin}[c] + 50 \mathrm{i} B \mathrm{Cos}[c]^3 \mathrm{Sin}[c] - \frac{3}{2} \mathrm{i} A \mathrm{Sin}[c]^2 - 6 B \mathrm{Sin}[c]^2 + 75 \mathrm{i} A \mathrm{Cos}[c]^2 \mathrm{Sin}[c]^2 +$$
$$60 B \mathrm{Cos}[c]^2 \mathrm{Sin}[c]^2 + 40 A \mathrm{Cos}[c] \mathrm{Sin}[c]^3 - 40 \mathrm{i} B \mathrm{Cos}[c] \mathrm{Sin}[c]^3 - \frac{19}{2} \mathrm{i} A \mathrm{Sin}[c]^4 - 14 B \mathrm{Sin}[c]^4 + (3 A + 4 A \mathrm{Cos}[2 c] - 4 \mathrm{i} B \mathrm{Cos}[2 c])$$
$$\left.\mathrm{Csc}[c] \mathrm{Sec}[c] (-\mathrm{Cos}[4 c] + \mathrm{i} \mathrm{Sin}[4 c]) - \frac{1}{2} A \mathrm{Sin}[c]^2 \mathrm{Tan}[c] + 2 \mathrm{i} B \mathrm{Sin}[c]^2 \mathrm{Tan}[c] - \frac{1}{2} A \mathrm{Sin}[c]^4 \mathrm{Tan}[c] + 2 \mathrm{i} B \mathrm{Sin}[c]^4 \mathrm{Tan}[c]\right) +$$

$$\left(B (\mathrm{i} + \mathrm{Cot}[c + d x])^4 (B + A \mathrm{Cot}[c + d x]) \mathrm{Sec}[c] (\mathrm{Cos}[4 c] - \mathrm{i} \mathrm{Sin}[4 c]) \mathrm{Sin}[d x] \mathrm{Sin}[c + d x]^4 \mathrm{Tan}[c + d x]\right) /$$
$$\left.\left(d (\mathrm{Cos}[d x] + \mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c + d x] + B \mathrm{Sin}[c + d x])\right)\right)$$

- **Problem 32: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c + d x]^4 (a + \mathrm{i} a \mathrm{Tan}[c + d x])^4 (A + B \mathrm{Tan}[c + d x]) \, dx$$

Optimal (type 3, 163 leaves, 7 steps) :

$$8 a^4 (A - i B) x - \frac{a^4 B \operatorname{Log}[\operatorname{Cos}[c + d x]]}{d} - \frac{a^4 (8 i A + 7 B) \operatorname{Log}[\operatorname{Sin}[c + d x]]}{d} - \frac{a A \operatorname{Cot}[c + d x]^3 (a + i a \operatorname{Tan}[c + d x])^3}{3 d} - \frac{(2 i A + B) \operatorname{Cot}[c + d x]^2 \left(a^2 + i a^2 \operatorname{Tan}[c + d x]\right)^2}{2 d} + \frac{(4 A - 3 i B) \operatorname{Cot}[c + d x] \left(a^4 + i a^4 \operatorname{Tan}[c + d x]\right)}{d}$$

Result (type 3, 1138 leaves) :

$$a^4\left(\frac{A\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c]\,\left(\frac{1}{3}\,\mathrm{Cos}[4\,c]-\frac{1}{3}\,\mathrm{i}\,\mathrm{Sin}[4\,c]\right)\,\mathrm{Sin}[d\,x]\,\mathrm{Sin}[c+d\,x]^2}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}+\right.$$

$$\left((\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c]\,(-2\,A\,\mathrm{Cos}[c]-12\,\mathrm{i}\,A\,\mathrm{Sin}[c]-3\,B\,\mathrm{Sin}[c])\,\left(\frac{1}{6}\,\mathrm{Cos}[4\,c]-\frac{1}{6}\,\mathrm{i}\,\mathrm{Sin}[4\,c]\right)\,\mathrm{Sin}[c+d\,x]^3\right)\Big/$$

$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)+$$

$$\left((\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Csc}[c]\,\left(-\frac{2}{3}\,\mathrm{Cos}[4\,c]+\frac{2}{3}\,\mathrm{i}\,\mathrm{Sin}[4\,c]\right)\,(11\,A\,\mathrm{Sin}[d\,x]-6\,\mathrm{i}\,B\,\mathrm{Sin}[d\,x])\,\mathrm{Sin}[c+d\,x]^4\right)\Big/$$

$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)-$$

$$\frac{B\,\mathrm{Cos}[4\,c]\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[c+d\,x]^5}{2\,d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}+$$

$$\left((\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,(8\,A\,\mathrm{Cos}[2\,c]-7\,\mathrm{i}\,B\,\mathrm{Cos}[2\,c]-8\,\mathrm{i}\,A\,\mathrm{Sin}[2\,c]-7\,B\,\mathrm{Sin}[2\,c])\right.$$

$$\left.(-\mathrm{ArcTan}[\mathrm{Tan}[5\,c+d\,x]]\,\mathrm{Cos}[2\,c]+\mathrm{i}\,\mathrm{ArcTan}[\mathrm{Tan}[5\,c+d\,x]]\,\mathrm{Sin}[2\,c])\,\mathrm{Sin}[c+d\,x]^5\right)\Big/$$

$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)+\left((\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\right.$$

$$(8\,A\,\mathrm{Cos}[2\,c]-7\,\mathrm{i}\,B\,\mathrm{Cos}[2\,c]-8\,\mathrm{i}\,A\,\mathrm{Sin}[2\,c]-7\,B\,\mathrm{Sin}[2\,c])\,\left(-\frac{1}{2}\,\mathrm{i}\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]-\frac{1}{2}\,\mathrm{Log}\left[\mathrm{Sin}[c+d\,x]^2\right]\,\mathrm{Sin}[2\,c]\right)$$

$$\left.\mathrm{Sin}[c+d\,x]^5\right)\Big/\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)+$$

$$\frac{\mathrm{i}\,B\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}[4\,c]\,\mathrm{Sin}[c+d\,x]^5}{2\,d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{(A-\mathrm{i}\,B)\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,(8\,d\,x\,\mathrm{Cos}[4\,c]-8\,\mathrm{i}\,d\,x\,\mathrm{Sin}[4\,c])\,\mathrm{Sin}[c+d\,x]^5}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}+$$

$$\frac{1}{(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\,x\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]^5\,\left(\frac{1}{2}\,\mathrm{i}\,B\,\mathrm{Cos}[c]^2+40\,A\,\mathrm{Cos}[c]^4-\right.$$

$$\frac{71}{2}\,\mathrm{i}\,B\,\mathrm{Cos}[c]^4+8\,\mathrm{i}\,A\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c]+7\,B\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c]+\frac{3}{2}\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]-80\,\mathrm{i}\,A\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]-\frac{145}{2}\,B\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c]-$$

$$\frac{3}{2}\,\mathrm{i}\,B\,\mathrm{Sin}[c]^2-80\,A\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2+75\,\mathrm{i}\,B\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2+40\,\mathrm{i}\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3+40\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3+8\,A\,\mathrm{Sin}[c]^4-\frac{19}{2}\,\mathrm{i}\,B\,\mathrm{Sin}[c]^4-$$

$$\left.\left.\mathrm{i}\,(4\,A-3\,\mathrm{i}\,B+4\,A\,\mathrm{Cos}[2\,c]-4\,\mathrm{i}\,B\,\mathrm{Cos}[2\,c])\,\mathrm{Csc}[c]\,\mathrm{Sec}[c]\,(\mathrm{Cos}[4\,c]-\mathrm{i}\,\mathrm{Sin}[4\,c])-\frac{1}{2}\,B\,\mathrm{Sin}[c]^2\,\mathrm{Tan}[c]-\frac{1}{2}\,B\,\mathrm{Sin}[c]^4\,\mathrm{Tan}[c]\right)\right)$$

- **Problem 33: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^5\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 177 leaves, 6 steps) :

$$8 a^4 (i A + B) x + \frac{a^4 (67 i A + 64 B) \text{Cot}[c + d x]}{12 d} + \frac{8 a^4 (A - i B) \text{Log}[\text{Sin}[c + d x]]}{d} - \frac{a A \text{Cot}[c + d x]^4 (a + i a \text{Tan}[c + d x])^3}{4 d} - \frac{(7 i A + 4 B) \text{Cot}[c + d x]^3 \left(a^2 + i a^2 \text{Tan}[c + d x]\right)^2}{12 d} + \frac{(19 A - 16 i B) \text{Cot}[c + d x]^2 \left(a^4 + i a^4 \text{Tan}[c + d x]\right)}{12 d}$$

Result (type 3, 985 leaves) :

$$a^4 \left(\frac{(i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) \left(-\frac{1}{4} A \text{Cos}[4 c] + \frac{1}{4} i A \text{Sin}[4 c]\right) \text{Sin}[c + d x]}{d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} + \right.$$
$$\left((i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) \text{Csc}[c] \left(\frac{1}{3} \text{Cos}[4 c] - \frac{1}{3} i \text{Sin}[4 c]\right) (4 i A \text{Sin}[d x] + B \text{Sin}[d x]) \text{Sin}[c + d x]^2\right) \Big/$$
$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$
$$\left((i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) \text{Csc}[c] (-4 i A \text{Cos}[c] - B \text{Cos}[c] + 12 A \text{Sin}[c] - 6 i B \text{Sin}[c]) \right.$$
$$\left.\left(\frac{1}{3} \text{Cos}[4 c] - \frac{1}{3} i \text{Sin}[4 c]\right) \text{Sin}[c + d x]^3\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$
$$\left((i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) \text{Csc}[c] \left(\frac{2}{3} \text{Cos}[4 c] - \frac{2}{3} i \text{Sin}[4 c]\right) (-14 i A \text{Sin}[d x] - 11 B \text{Sin}[d x]) \text{Sin}[c + d x]^4\right) \Big/$$
$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) +$$
$$\left((i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) (A \text{Cos}[2 c] - i B \text{Cos}[2 c] - i A \text{Sin}[2 c] - B \text{Sin}[2 c])\right.$$
$$\left.(-8 i \text{ArcTan}[\text{Tan}[5 c + d x]] \text{Cos}[2 c] - 8 \text{ArcTan}[\text{Tan}[5 c + d x]] \text{Sin}[2 c]) \text{Sin}[c + d x]^5\right) \Big/$$
$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left((i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x])\right.$$
$$\left.(A \text{Cos}[2 c] - i B \text{Cos}[2 c] - i A \text{Sin}[2 c] - B \text{Sin}[2 c]) \left(4 \text{Cos}[2 c] \text{Log}\left[\text{Sin}[c + d x]^2\right] - 4 i \text{Log}\left[\text{Sin}[c + d x]^2\right] \text{Sin}[2 c]\right) \text{Sin}[c + d x]^5\right) \Big/$$
$$\left(d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \frac{1}{(\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])}$$
$$x (i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) \left(40 i A \text{Cos}[c]^4 + 40 B \text{Cos}[c]^4 - 8 A \text{Cos}[c]^4 \text{Cot}[c] + 8 i B \text{Cos}[c]^4 \text{Cot}[c] + \right.$$
$$80 A \text{Cos}[c]^3 \text{Sin}[c] - 80 i B \text{Cos}[c]^3 \text{Sin}[c] - 80 i A \text{Cos}[c]^2 \text{Sin}[c]^2 - 80 B \text{Cos}[c]^2 \text{Sin}[c]^2 - 40 A \text{Cos}[c] \text{Sin}[c]^3 +$$
$$\left.40 i B \text{Cos}[c] \text{Sin}[c]^3 + 8 i A \text{Sin}[c]^4 + 8 B \text{Sin}[c]^4 + (A - i B) \text{Cot}[c] (8 \text{Cos}[4 c] - 8 i \text{Sin}[4 c])\right) \text{Sin}[c + d x]^5 +$$
$$\left. \frac{(i A + B) (i + \text{Cot}[c + d x])^4 (B + A \text{Cot}[c + d x]) (8 d x \text{Cos}[4 c] - 8 i d x \text{Sin}[4 c]) \text{Sin}[c + d x]^5}{d (\text{Cos}[d x] + i \text{Sin}[d x])^4 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])} \right)$$

- **Problem 34: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c + d x]^6 (a + i a \text{Tan}[c + d x])^4 (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 200 leaves, 7 steps) :

$$-8 a^4 (A-\mathrm{i} B) x-\frac{8 a^4 (A-\mathrm{i} B) \mathrm{Cot}[c+d x]}{d}+\frac{a^4 (148 \mathrm{i} A+145 B) \mathrm{Cot}[c+d x]^2}{60 d}+\frac{8 a^4 (\mathrm{i} A+B) \mathrm{Log}[\mathrm{Sin}[c+d x]]}{d}-\frac{a A \mathrm{Cot}[c+d x]^5 (a+\mathrm{i} a \mathrm{Tan}[c+d x])^3}{5 d}-\frac{(8 \mathrm{i} A+5 B) \mathrm{Cot}[c+d x]^4 \left(a^2+\mathrm{i} a^2 \mathrm{Tan}[c+d x]\right)^2}{20 d}+\frac{(28 A-25 \mathrm{i} B) \mathrm{Cot}[c+d x]^3 \left(a^4+\mathrm{i} a^4 \mathrm{Tan}[c+d x]\right)}{30 d}$$

Result (type 3, 937 leaves) :

$$a^4 \Big(\Big((\mathrm{i}+\mathrm{Cot}[c+d x])^4 (B+A \mathrm{Cot}[c+d x]) (\mathrm{i} A \mathrm{Cos}[2 c]+B \mathrm{Cos}[2 c]+A \mathrm{Sin}[2 c]-\mathrm{i} B \mathrm{Sin}[2 c]) (-8 \mathrm{i} \mathrm{ArcTan}[\mathrm{Tan}[5 c+d x]] \mathrm{Cos}[2 c]-8 \mathrm{ArcTan}[\mathrm{Tan}[5 c+d x]] \mathrm{Sin}[2 c]) \mathrm{Sin}[c+d x]^5\Big) \Big/ \Big(d (\mathrm{Cos}[d x]+\mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\Big)+\Big((\mathrm{i}+\mathrm{Cot}[c+d x])^4 (B+A \mathrm{Cot}[c+d x]) (\mathrm{i} A \mathrm{Cos}[2 c]+B \mathrm{Cos}[2 c]+A \mathrm{Sin}[2 c]-\mathrm{i} B \mathrm{Sin}[2 c]) \left(4 \mathrm{Cos}[2 c] \mathrm{Log}\left[\mathrm{Sin}[c+d x]^2\right]-4 \mathrm{i} \mathrm{Log}\left[\mathrm{Sin}[c+d x]^2\right] \mathrm{Sin}[2 c]\right) \mathrm{Sin}[c+d x]^5\Big) \Big/ \Big(d (\mathrm{Cos}[d x]+\mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\Big)+\frac{1}{(\mathrm{Cos}[d x]+\mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])} x (\mathrm{i}+\mathrm{Cot}[c+d x])^4 (B+A \mathrm{Cot}[c+d x]) \Big(-40 A \mathrm{Cos}[c]^4+40 \mathrm{i} B \mathrm{Cos}[c]^4-8 \mathrm{i} A \mathrm{Cos}[c]^4 \mathrm{Cot}[c]-8 B \mathrm{Cos}[c]^4 \mathrm{Cot}[c]+80 \mathrm{i} A \mathrm{Cos}[c]^3 \mathrm{Sin}[c]+80 B \mathrm{Cos}[c]^3 \mathrm{Sin}[c]+80 A \mathrm{Cos}[c]^2 \mathrm{Sin}[c]^2-80 \mathrm{i} B \mathrm{Cos}[c]^2 \mathrm{Sin}[c]^2-40 \mathrm{i} A \mathrm{Cos}[c] \mathrm{Sin}[c]^3-40 B \mathrm{Cos}[c] \mathrm{Sin}[c]^3-8 A \mathrm{Sin}[c]^4+8 \mathrm{i} B \mathrm{Sin}[c]^4+(\mathrm{i} A+B) \mathrm{Cot}[c] (8 \mathrm{Cos}[4 c]-8 \mathrm{i} \mathrm{Sin}[4 c])\Big) \mathrm{Sin}[c+d x]^5+\frac{1}{d (\mathrm{Cos}[d x]+\mathrm{i} \mathrm{Sin}[d x])^4 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])} (\mathrm{i}+\mathrm{Cot}[c+d x])^4 (B+A \mathrm{Cot}[c+d x]) \mathrm{Csc}[c] \left(\frac{1}{120} \mathrm{Cos}[4 c]-\frac{1}{120} \mathrm{i} \mathrm{Sin}[4 c]\right) (210 \mathrm{i} A \mathrm{Cos}[d x]+165 B \mathrm{Cos}[d x]-300 A d x \mathrm{Cos}[d x]+300 \mathrm{i} B d x \mathrm{Cos}[d x]-210 \mathrm{i} A \mathrm{Cos}[2 c+d x]-165 B \mathrm{Cos}[2 c+d x]+300 A d x \mathrm{Cos}[2 c+d x]-300 \mathrm{i} B d x \mathrm{Cos}[2 c+d x]-90 \mathrm{i} A \mathrm{Cos}[2 c+3 d x]-60 B \mathrm{Cos}[2 c+3 d x]+150 A d x \mathrm{Cos}[2 c+3 d x]-150 \mathrm{i} B d x \mathrm{Cos}[2 c+3 d x]+90 \mathrm{i} A \mathrm{Cos}[4 c+3 d x]+60 B \mathrm{Cos}[4 c+3 d x]-150 A d x \mathrm{Cos}[4 c+3 d x]+150 \mathrm{i} B d x \mathrm{Cos}[4 c+3 d x]-30 A d x \mathrm{Cos}[4 c+5 d x]+30 \mathrm{i} B d x \mathrm{Cos}[4 c+5 d x]+30 A d x \mathrm{Cos}[6 c+5 d x]-30 \mathrm{i} B d x \mathrm{Cos}[6 c+5 d x]+445 A \mathrm{Sin}[d x]-400 \mathrm{i} B \mathrm{Sin}[d x]+345 A \mathrm{Sin}[2 c+d x]-300 \mathrm{i} B \mathrm{Sin}[2 c+d x]-275 A \mathrm{Sin}[2 c+3 d x]+260 \mathrm{i} B \mathrm{Sin}[2 c+3 d x]-120 A \mathrm{Sin}[4 c+3 d x]+90 \mathrm{i} B \mathrm{Sin}[4 c+3 d x]+79 A \mathrm{Sin}[4 c+5 d x]-70 \mathrm{i} B \mathrm{Sin}[4 c+5 d x])\Big)$$

- **Problem 35: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d x]^7 (a+\mathrm{i} a \mathrm{Tan}[c+d x])^4 (A+B \mathrm{Tan}[c+d x]) \, dx$$

Optimal (type 3, 223 leaves, 8 steps) :

$$-8 a^4 (\mathrm{i} A+B) x-\frac{8 a^4 (\mathrm{i} A+B) \mathrm{Cot}[c+d x]}{d}-\frac{4 a^4 (A-\mathrm{i} B) \mathrm{Cot}[c+d x]^2}{d}+\frac{a^4 (93 \mathrm{i} A+92 B) \mathrm{Cot}[c+d x]^3}{60 d}-\frac{8 a^4 (A-\mathrm{i} B) \mathrm{Log}[\mathrm{Sin}[c+d x]]}{d}-\frac{a A \mathrm{Cot}[c+d x]^6 (a+\mathrm{i} a \mathrm{Tan}[c+d x])^3}{6 d}-\frac{(3 \mathrm{i} A+2 B) \mathrm{Cot}[c+d x]^5 \left(a^2+\mathrm{i} a^2 \mathrm{Tan}[c+d x]\right)^2}{10 d}+\frac{(13 A-12 \mathrm{i} B) \mathrm{Cot}[c+d x]^4 \left(a^4+\mathrm{i} a^4 \mathrm{Tan}[c+d x]\right)}{20 d}$$

Result (type 3, 1009 leaves) :

$$a^4 \left(\left((\mathrm{i} + \mathrm{Cot}[c + d\,x])^4 \,(B + A\,\mathrm{Cot}[c + d\,x])\,(A\,\mathrm{Cos}[2\,c] - \mathrm{i}\,B\,\mathrm{Cos}[2\,c] - \mathrm{i}\,A\,\mathrm{Sin}[2\,c] - B\,\mathrm{Sin}[2\,c]) \right.\right.$$
$$(8\,\mathrm{i}\,\mathrm{ArcTan}[\mathrm{Tan}[5\,c + d\,x]]\,\mathrm{Cos}[2\,c] + 8\,\mathrm{ArcTan}[\mathrm{Tan}[5\,c + d\,x]]\,\mathrm{Sin}[2\,c])\,\mathrm{Sin}[c + d\,x]^5\Big) \Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x] + \mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c + d\,x] + B\,\mathrm{Sin}[c + d\,x])\right) + \Big((\mathrm{i} + \mathrm{Cot}[c + d\,x])^4\,(B + A\,\mathrm{Cot}[c + d\,x])$$
$$(A\,\mathrm{Cos}[2\,c] - \mathrm{i}\,B\,\mathrm{Cos}[2\,c] - \mathrm{i}\,A\,\mathrm{Sin}[2\,c] - B\,\mathrm{Sin}[2\,c])\,\left(-4\,\mathrm{Cos}[2\,c]\,\mathrm{Log}\left[\mathrm{Sin}[c + d\,x]^2\right] + 4\,\mathrm{i}\,\mathrm{Log}\left[\mathrm{Sin}[c + d\,x]^2\right]\,\mathrm{Sin}[2\,c]\right)\,\mathrm{Sin}[c + d\,x]^5\Big) \Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x] + \mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c + d\,x] + B\,\mathrm{Sin}[c + d\,x])\right) + \frac{1}{(\mathrm{Cos}[d\,x] + \mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c + d\,x] + B\,\mathrm{Sin}[c + d\,x])}$$
$$x\,(\mathrm{i} + \mathrm{Cot}[c + d\,x])^4\,(B + A\,\mathrm{Cot}[c + d\,x])\,\left(-40\,\mathrm{i}\,A\,\mathrm{Cos}[c]^4 - 40\,B\,\mathrm{Cos}[c]^4 + 8\,A\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c] - 8\,\mathrm{i}\,B\,\mathrm{Cos}[c]^4\,\mathrm{Cot}[c] - \right.$$
$$80\,A\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c] + 80\,\mathrm{i}\,B\,\mathrm{Cos}[c]^3\,\mathrm{Sin}[c] + 80\,\mathrm{i}\,A\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2 + 80\,B\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]^2 + 40\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3 -$$
$$\left.40\,\mathrm{i}\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^3 - 8\,\mathrm{i}\,A\,\mathrm{Sin}[c]^4 - 8\,B\,\mathrm{Sin}[c]^4 + (A - \mathrm{i}\,B)\,\mathrm{Cot}[c]\,(-8\,\mathrm{Cos}[4\,c] + 8\,\mathrm{i}\,\mathrm{Sin}[4\,c])\right)\,\mathrm{Sin}[c + d\,x]^5 +$$
$$\frac{1}{d\,(\mathrm{Cos}[d\,x] + \mathrm{i}\,\mathrm{Sin}[d\,x])^4\,(A\,\mathrm{Cos}[c + d\,x] + B\,\mathrm{Sin}[c + d\,x])}\,(\mathrm{i} + \mathrm{Cot}[c + d\,x])^4\,(B + A\,\mathrm{Cot}[c + d\,x])\,\mathrm{Csc}[c]\,\mathrm{Csc}[c + d\,x]$$
$$\left(\frac{1}{240}\,\mathrm{Cos}[4\,c] - \frac{1}{240}\,\mathrm{i}\,\mathrm{Sin}[4\,c]\right)\,(860\,\mathrm{i}\,A\,\mathrm{Cos}[c] + 790\,B\,\mathrm{Cos}[c] - 780\,\mathrm{i}\,A\,\mathrm{Cos}[c + 2\,d\,x] - 720\,B\,\mathrm{Cos}[c + 2\,d\,x] - 510\,\mathrm{i}\,A\,\mathrm{Cos}[3\,c + 2\,d\,x] -$$
$$465\,B\,\mathrm{Cos}[3\,c + 2\,d\,x] + 366\,\mathrm{i}\,A\,\mathrm{Cos}[3\,c + 4\,d\,x] + 354\,B\,\mathrm{Cos}[3\,c + 4\,d\,x] + 150\,\mathrm{i}\,A\,\mathrm{Cos}[5\,c + 4\,d\,x] + 120\,B\,\mathrm{Cos}[5\,c + 4\,d\,x] -$$
$$86\,\mathrm{i}\,A\,\mathrm{Cos}[5\,c + 6\,d\,x] - 79\,B\,\mathrm{Cos}[5\,c + 6\,d\,x] - 490\,A\,\mathrm{Sin}[c] + 420\,\mathrm{i}\,B\,\mathrm{Sin}[c] - 600\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[c] - 600\,B\,d\,x\,\mathrm{Sin}[c] -$$
$$345\,A\,\mathrm{Sin}[c + 2\,d\,x] + 300\,\mathrm{i}\,B\,\mathrm{Sin}[c + 2\,d\,x] - 450\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[c + 2\,d\,x] - 450\,B\,d\,x\,\mathrm{Sin}[c + 2\,d\,x] + 345\,A\,\mathrm{Sin}[3\,c + 2\,d\,x] -$$
$$300\,\mathrm{i}\,B\,\mathrm{Sin}[3\,c + 2\,d\,x] + 450\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[3\,c + 2\,d\,x] + 450\,B\,d\,x\,\mathrm{Sin}[3\,c + 2\,d\,x] + 120\,A\,\mathrm{Sin}[3\,c + 4\,d\,x] - 90\,\mathrm{i}\,B\,\mathrm{Sin}[3\,c + 4\,d\,x] +$$
$$180\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[3\,c + 4\,d\,x] + 180\,B\,d\,x\,\mathrm{Sin}[3\,c + 4\,d\,x] - 120\,A\,\mathrm{Sin}[5\,c + 4\,d\,x] + 90\,\mathrm{i}\,B\,\mathrm{Sin}[5\,c + 4\,d\,x] - 180\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[5\,c + 4\,d\,x] -$$
$$\left.180\,B\,d\,x\,\mathrm{Sin}[5\,c + 4\,d\,x] - 30\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[5\,c + 6\,d\,x] - 30\,B\,d\,x\,\mathrm{Sin}[5\,c + 6\,d\,x] + 30\,\mathrm{i}\,A\,d\,x\,\mathrm{Sin}[7\,c + 6\,d\,x] + 30\,B\,d\,x\,\mathrm{Sin}[7\,c + 6\,d\,x])\right)$$

- **Problem 36: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Tan}[c + d\,x]^3\,(A + B\,\mathrm{Tan}[c + d\,x])}{a + \mathrm{i}\,a\,\mathrm{Tan}[c + d\,x]}\,dx$$

Optimal (type 3, 129 leaves, 4 steps):

$$\frac{3\,(\mathrm{i}\,A - B)\,x}{2\,a} - \frac{(A + 2\,\mathrm{i}\,B)\,\mathrm{Log}[\mathrm{Cos}[c + d\,x]]}{a\,d} - \frac{3\,(\mathrm{i}\,A - B)\,\mathrm{Tan}[c + d\,x]}{2\,a\,d} - \frac{(A + 2\,\mathrm{i}\,B)\,\mathrm{Tan}[c + d\,x]^2}{2\,a\,d} + \frac{(\mathrm{i}\,A - B)\,\mathrm{Tan}[c + d\,x]^3}{2\,d\,(a + \mathrm{i}\,a\,\mathrm{Tan}[c + d\,x])}$$

Result (type 3, 898 leaves):

$$\left(\left(A\,\mathrm{Cos}\left[\frac{c}{2}\right]+2\,i\,B\,\mathrm{Cos}\left[\frac{c}{2}\right]+i\,A\,\mathrm{Sin}\left[\frac{c}{2}\right]-2\,B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(i\,\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\,(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x]))+$$
$$\left(\left(A\,\mathrm{Cos}\left[\frac{c}{2}\right]+2\,i\,B\,\mathrm{Cos}\left[\frac{c}{2}\right]+i\,A\,\mathrm{Sin}\left[\frac{c}{2}\right]-2\,B\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(-\frac{1}{2}\,\mathrm{Cos}\left[\frac{c}{2}\right]\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]-\frac{1}{2}\,i\,\mathrm{Log}\left[\mathrm{Cos}[c+d\,x]^2\right]\,\mathrm{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\,(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x]))+$$
$$\frac{(A+i\,B)\,\mathrm{Cos}[2\,d\,x]\,\left(\frac{\mathrm{Cos}[c]}{4}-\frac{1}{4}\,i\,\mathrm{Sin}[c]\right)\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}+$$
$$\frac{\mathrm{Sec}[c+d\,x]^2\,\left(-\frac{1}{2}\,i\,B\,\mathrm{Cos}[c]+\frac{1}{2}\,B\,\mathrm{Sin}[c]\right)\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}+$$
$$\frac{(A+i\,B)\,\left(\frac{3}{2}\,i\,d\,x\,\mathrm{Cos}[c]-\frac{3}{2}\,d\,x\,\mathrm{Sin}[c]\right)\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}+$$
$$\frac{(-i\,A+B)\,\left(\frac{\mathrm{Cos}[c]}{4}-\frac{1}{4}\,i\,\mathrm{Sin}[c]\right)\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,\mathrm{Sin}[2\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}+$$
$$(\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c-d\,x]+i\,B\,\mathrm{Cos}[c-d\,x]-A\,\mathrm{Cos}[c+d\,x]-$$
$$i\,B\,\mathrm{Cos}[c+d\,x]+i\,A\,\mathrm{Sin}[c-d\,x]-B\,\mathrm{Sin}[c-d\,x]-i\,A\,\mathrm{Sin}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x]))\Big/$$
$$\left(2\,d\,\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])\right)+$$
$$(x\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])\,(-i\,A\,\mathrm{Sec}[c]+2\,B\,\mathrm{Sec}[c]+(A+2\,i\,B)\,(\mathrm{Cos}[c]+i\,\mathrm{Sin}[c])\,\mathrm{Tan}[c])\,(A+B\,\mathrm{Tan}[c+d\,x]))\,/$$
$$((A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x]))$$

- **Problem 37: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{a+i\,a\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 101 leaves, 3 steps):

$$\frac{(A+3\,i\,B)\,x}{2\,a}+\frac{(i\,A-B)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{a\,d}-\frac{(A+3\,i\,B)\,\mathrm{Tan}[c+d\,x]}{2\,a\,d}+\frac{(i\,A-B)\,\mathrm{Tan}[c+d\,x]^2}{2\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 773 leaves):

$$\left(\left(A\,\text{Cos}\left[\frac{c}{2}\right]+i\,B\,\text{Cos}\left[\frac{c}{2}\right]+i\,A\,\text{Sin}\left[\frac{c}{2}\right]-B\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Cos}\left[\frac{c}{2}\right]+i\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\,(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x]))+$$
$$\left(\left(A\,\text{Cos}\left[\frac{c}{2}\right]+i\,B\,\text{Cos}\left[\frac{c}{2}\right]+i\,A\,\text{Sin}\left[\frac{c}{2}\right]-B\,\text{Sin}\left[\frac{c}{2}\right]\right)\left(\frac{1}{2}\,i\,\text{Cos}\left[\frac{c}{2}\right]\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]-\frac{1}{2}\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\,\text{Sin}\left[\frac{c}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\,(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x]))+$$
$$\frac{(-i\,A+B)\,\text{Cos}[2\,d\,x]\,\left(\frac{\text{Cos}[c]}{4}-\frac{1}{4}\,i\,\text{Sin}[c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{(A+3\,i\,B)\,\left(\frac{1}{2}\,d\,x\,\text{Cos}[c]+\frac{1}{2}\,i\,d\,x\,\text{Sin}[c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$\frac{(A+i\,B)\,\left(-\frac{\text{Cos}[c]}{4}+\frac{1}{4}\,i\,\text{Sin}[c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,\text{Sin}[2\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])}+$$
$$(\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(B\,\text{Cos}[c-d\,x]-B\,\text{Cos}[c+d\,x]+i\,B\,\text{Sin}[c-d\,x]-i\,B\,\text{Sin}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x]))\Big/$$
$$\left(2\,d\,\left(\text{Cos}\left[\frac{c}{2}\right]-\text{Sin}\left[\frac{c}{2}\right]\right)\left(\text{Cos}\left[\frac{c}{2}\right]+\text{Sin}\left[\frac{c}{2}\right]\right)(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])\right)+$$
$$(x\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])\,(-A\,\text{Sec}[c]-i\,B\,\text{Sec}[c]-i\,(A+i\,B)\,(\text{Cos}[c]+i\,\text{Sin}[c])\,\text{Tan}[c])\,(A+B\,\text{Tan}[c+d\,x]))\,/$$
$$((A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x]))$$

Problem 38: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 67 leaves, 5 steps):

$$-\frac{(i\,A-B)\,x}{2\,a}+\frac{i\,B\,\text{Log}[\text{Cos}[c+d\,x]]}{a\,d}-\frac{A+i\,B}{2\,a\,d\,(1+i\,\text{Tan}[c+d\,x])}$$

Result (type 3, 148 leaves):

$$\left(\text{Cos}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right.$$
$$\left(i\,A-B-2\,A\,d\,x+2\,i\,B\,d\,x+2\,B\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]+\left(A+i\,B-2\,i\,A\,d\,x-2\,B\,d\,x+2\,i\,B\,\text{Log}\left[\text{Cos}[c+d\,x]^2\right]\right)\text{Tan}[c+d\,x]+\right.$$
$$\left.\left.4\,B\,\text{ArcTan}[\text{Tan}[d\,x]]\,(-i+\text{Tan}[c+d\,x])\right)\right)\Big/\,(4\,a\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(-i+\text{Tan}[c+d\,x]))$$

Problem 39: Result more than twice size of optimal antiderivative.

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{a+i\,a\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 47 leaves, 2 steps):

$$\frac{(A - i B)\, x}{2 a} + \frac{i A - B}{2 d\, (a + i a \operatorname{Tan}[c + d x])}$$

Result (type 3, 102 leaves):

$$\frac{\operatorname{Cos}[c + d x]\, (A + B \operatorname{Tan}[c + d x])\, (A - 2 i A d x + B\, (i - 2 d x) + (B - 2 i B d x + A\, (-i + 2 d x)) \operatorname{Tan}[c + d x])}{4 a d\, (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x])\, (-i + \operatorname{Tan}[c + d x])}$$

Problem 40: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c + d x]\, (A + B \operatorname{Tan}[c + d x])}{a + i a \operatorname{Tan}[c + d x]}\, dx$$

Optimal (type 3, 62 leaves, 3 steps):

$$-\frac{(i A - B)\, x}{2 a} + \frac{A \operatorname{Log}[\operatorname{Sin}[c + d x]]}{a d} + \frac{A + i B}{2 d\, (a + i a \operatorname{Tan}[c + d x])}$$

Result (type 3, 150 leaves):

$$\Big(\operatorname{Cos}[c + d x]\, (A + B \operatorname{Tan}[c + d x]) \Big(-i A + B + 2 A d x - 2 i B d x - 2 i A \operatorname{Log}\big[\operatorname{Sin}[c + d x]^2\big] + \Big(-A - i B + 2 i A d x + 2 B d x + 2 A \operatorname{Log}\big[\operatorname{Sin}[c + d x]^2\big]\Big) \operatorname{Tan}[c + d x] - 4 i A \operatorname{ArcTan}[\operatorname{Tan}[d x]]\, (-i + \operatorname{Tan}[c + d x])\Big)\Big) \Big/ (4 a d\, (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x])\, (-i + \operatorname{Tan}[c + d x]))$$

Problem 41: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c + d x]^2\, (A + B \operatorname{Tan}[c + d x])}{a + i a \operatorname{Tan}[c + d x]}\, dx$$

Optimal (type 3, 102 leaves, 4 steps):

$$-\frac{(3 A + i B)\, x}{2 a} - \frac{(3 A + i B) \operatorname{Cot}[c + d x]}{2 a d} - \frac{(i A - B) \operatorname{Log}[\operatorname{Sin}[c + d x]]}{a d} + \frac{(A + i B) \operatorname{Cot}[c + d x]}{2 d\, (a + i a \operatorname{Tan}[c + d x])}$$

Result (type 3, 225 leaves):

$$\frac{1}{2 d\, (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x])\, (a + i a \operatorname{Tan}[c + d x])} (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x]) \Big(\frac{1}{2} (-i A + B) \operatorname{Cos}[2 d x]\, (\operatorname{Cos}[c] - i \operatorname{Sin}[c]) + 2 (A + i B)\, d x\, (\operatorname{Cos}[c] + i \operatorname{Sin}[c]) - (3 A + i B)\, d x\, (\operatorname{Cos}[c] + i \operatorname{Sin}[c]) - 2 (A + i B) \operatorname{ArcTan}[\operatorname{Tan}[d x]]\, (\operatorname{Cos}[c] + i \operatorname{Sin}[c]) + (-i A + B) \operatorname{Log}\big[\operatorname{Sin}[c + d x]^2\big]\, (\operatorname{Cos}[c] + i \operatorname{Sin}[c]) + 2 A\, (i + \operatorname{Cot}[c]) \operatorname{Csc}[c + d x] \operatorname{Sin}[d x] - \frac{1}{2} (A + i B)\, (\operatorname{Cos}[c] - i \operatorname{Sin}[c]) \operatorname{Sin}[2 d x]\Big) (A + B \operatorname{Tan}[c + d x])$$

Problem 42: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Cot}[c + d x]^3\, (A + B \operatorname{Tan}[c + d x])}{a + i a \operatorname{Tan}[c + d x]}\, dx$$

Optimal (type 3, 131 leaves, 5 steps):

$$\frac{3\,(i A-B)\,x}{2\,a}+\frac{3\,(i A-B)\,\text{Cot}[c+d x]}{2\,a\,d}-\frac{(2 A+i B)\,\text{Cot}[c+d x]^2}{2\,a\,d}-\frac{(2 A+i B)\,\text{Log}[\text{Sin}[c+d x]]}{a\,d}+\frac{(A+i B)\,\text{Cot}[c+d x]^2}{2\,d\,(a+i\,a\,\text{Tan}[c+d x])}$$

Result (type 3, 902 leaves) :

$$\Big(\Big(2\,A\,\text{Cos}\Big[\frac{c}{2}\Big]+i\,B\,\text{Cos}\Big[\frac{c}{2}\Big]+2\,i\,A\,\text{Sin}\Big[\frac{c}{2}\Big]-B\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\Big(i\,\text{ArcTan}[\text{Tan}[d x]]\,\text{Cos}\Big[\frac{c}{2}\Big]-\text{ArcTan}[\text{Tan}[d x]]\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)$$
$$(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\,(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x]))+$$
$$\Big(\Big(2\,A\,\text{Cos}\Big[\frac{c}{2}\Big]+i\,B\,\text{Cos}\Big[\frac{c}{2}\Big]+2\,i\,A\,\text{Sin}\Big[\frac{c}{2}\Big]-B\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)\,\Big(-\frac{1}{2}\,\text{Cos}\Big[\frac{c}{2}\Big]\,\text{Log}\big[\text{Sin}[c+d x]^2\big]-\frac{1}{2}\,i\,\text{Log}\big[\text{Sin}[c+d x]^2\big]\,\text{Sin}\Big[\frac{c}{2}\Big]\Big)$$
$$(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\,(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x]))+$$
$$(x\,(2\,A\,\text{Csc}[c]+i\,B\,\text{Csc}[c]+(2 A+i B)\,\text{Cot}[c]\,(-\text{Cos}[c]-i\,\text{Sin}[c]))\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x]))\,/$$
$$((A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x]))+$$
$$\frac{(A+i B)\,\text{Cos}[2\,d x]\,\left(-\frac{\text{Cos}[c]}{4}+\frac{1}{4}\,i\,\text{Sin}[c]\right)\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x])}+$$
$$\frac{\text{Csc}[c+d x]^2\,\left(-\frac{1}{2}\,A\,\text{Cos}[c]-\frac{1}{2}\,i\,A\,\text{Sin}[c]\right)\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x])}+$$
$$\frac{(A+i B)\,\left(\frac{3}{2}\,i\,d\,x\,\text{Cos}[c]-\frac{3}{2}\,d\,x\,\text{Sin}[c]\right)\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x])}+$$
$$\frac{(A+i B)\,\left(\frac{1}{4}\,i\,\text{Cos}[c]+\frac{\text{Sin}[c]}{4}\right)\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,\text{Sin}[2\,d x]\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x])}+$$
$$\Big(\text{Csc}\Big[\frac{c}{2}\Big]\,\text{Csc}[c+d x]\,\text{Sec}\Big[\frac{c}{2}\Big]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])$$
$$\Big(\frac{1}{2}\,A\,\text{Cos}[c-d x]+\frac{1}{2}\,i\,B\,\text{Cos}[c-d x]-\frac{1}{2}\,A\,\text{Cos}[c+d x]-\frac{1}{2}\,i\,B\,\text{Cos}[c+d x]+\frac{1}{2}\,i\,A\,\text{Sin}[c-d x]-\frac{1}{2}\,B\,\text{Sin}[c-d x]-$$
$$\frac{1}{2}\,i\,A\,\text{Sin}[c+d x]+\frac{1}{2}\,B\,\text{Sin}[c+d x]\Big)\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\,(2\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i\,a\,\text{Tan}[c+d x]))$$

Problem 43: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d x]^4\,(A+B\,\text{Tan}[c+d x])}{a+i\,a\,\text{Tan}[c+d x]}\,dx$$

Optimal (type 3, 155 leaves, 6 steps) :

$$\frac{(5A+3iB)x}{2a}+\frac{(5A+3iB)\operatorname{Cot}[c+dx]}{2ad}+\frac{(iA-B)\operatorname{Cot}[c+dx]^2}{ad}-\frac{(5A+3iB)\operatorname{Cot}[c+dx]^3}{6ad}+\frac{2(iA-B)\operatorname{Log}[\operatorname{Sin}[c+dx]]}{ad}+\frac{(A+iB)\operatorname{Cot}[c+dx]^3}{2d(a+ia\operatorname{Tan}[c+dx])}$$

Result (type 3, 1062 leaves):

$$\Big(\Big(A\operatorname{Cos}\Big[\frac{c}{2}\Big]+iB\operatorname{Cos}\Big[\frac{c}{2}\Big]+iA\operatorname{Sin}\Big[\frac{c}{2}\Big]-B\operatorname{Sin}\Big[\frac{c}{2}\Big]\Big)\Big(2\operatorname{ArcTan}[\operatorname{Tan}[dx]]\operatorname{Cos}\Big[\frac{c}{2}\Big]+2i\operatorname{ArcTan}[\operatorname{Tan}[dx]]\operatorname{Sin}\Big[\frac{c}{2}\Big]\Big)(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx])\Big)\Big/(d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))+$$

$$\Big(\Big(A\operatorname{Cos}\Big[\frac{c}{2}\Big]+iB\operatorname{Cos}\Big[\frac{c}{2}\Big]+iA\operatorname{Sin}\Big[\frac{c}{2}\Big]-B\operatorname{Sin}\Big[\frac{c}{2}\Big]\Big)\Big(i\operatorname{Cos}\Big[\frac{c}{2}\Big]\operatorname{Log}\big[\operatorname{Sin}[c+dx]^2\big]-\operatorname{Log}\big[\operatorname{Sin}[c+dx]^2\big]\operatorname{Sin}\Big[\frac{c}{2}\Big]\Big)(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx])\Big)\Big/(d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))+$$

$$(x(-2iA\operatorname{Csc}[c]+2B\operatorname{Csc}[c]+i(A+iB)\operatorname{Cot}[c](2\operatorname{Cos}[c]+2i\operatorname{Sin}[c]))(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx]))/((A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))+$$

$$\frac{(A+iB)\operatorname{Cos}[2dx]\left(\frac{1}{4}i\operatorname{Cos}[c]+\frac{\operatorname{Sin}[c]}{4}\right)(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx])}{d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx])}+$$

$$\Big(\operatorname{Csc}\Big[\frac{c}{2}\Big]\operatorname{Csc}[c+dx]^2\operatorname{Sec}\Big[\frac{c}{2}\Big]\Big(-\frac{\operatorname{Cos}[c]}{12}-\frac{1}{12}i\operatorname{Sin}[c]\Big)(2A\operatorname{Cos}[c]-3iA\operatorname{Sin}[c]+3B\operatorname{Sin}[c])(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx])\Big)\Big/(d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))+$$

$$\frac{(5A+3iB)\left(\frac{1}{2}dx\operatorname{Cos}[c]+\frac{1}{2}idx\operatorname{Sin}[c]\right)(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])(A+B\operatorname{Tan}[c+dx])}{d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx])}+$$

$$\frac{(A+iB)\left(\frac{\operatorname{Cos}[c]}{4}-\frac{1}{4}i\operatorname{Sin}[c]\right)(\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])\operatorname{Sin}[2dx](A+B\operatorname{Tan}[c+dx])}{d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx])}+$$

$$\Big(\operatorname{Csc}\Big[\frac{c}{2}\Big]\operatorname{Csc}[c+dx]^3\operatorname{Sec}\Big[\frac{c}{2}\Big](\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])\Big(\frac{1}{2}iA\operatorname{Cos}[c-dx]-\frac{1}{2}iA\operatorname{Cos}[c+dx]-\frac{1}{2}A\operatorname{Sin}[c-dx]+\frac{1}{2}A\operatorname{Sin}[c+dx]\Big)(A+B\operatorname{Tan}[c+dx])\Big)\Big/(6d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))+\Big(\operatorname{Csc}\Big[\frac{c}{2}\Big]\operatorname{Csc}[c+dx]\operatorname{Sec}\Big[\frac{c}{2}\Big](\operatorname{Cos}[dx]+i\operatorname{Sin}[dx])$$

$$\Big(-\frac{7}{2}iA\operatorname{Cos}[c-dx]+\frac{3}{2}B\operatorname{Cos}[c-dx]+\frac{7}{2}iA\operatorname{Cos}[c+dx]-\frac{3}{2}B\operatorname{Cos}[c+dx]+\frac{7}{2}A\operatorname{Sin}[c-dx]+\frac{3}{2}iB\operatorname{Sin}[c-dx]-\frac{7}{2}A\operatorname{Sin}[c+dx]-\frac{3}{2}iB\operatorname{Sin}[c+dx]\Big)(A+B\operatorname{Tan}[c+dx])\Big)\Big/(6d(A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx])(a+ia\operatorname{Tan}[c+dx]))$$

- **Problem 44: Result more than twice size of optimal antiderivative.**

$$\int\frac{\operatorname{Tan}[c+dx]^3(A+B\operatorname{Tan}[c+dx])}{(a+ia\operatorname{Tan}[c+dx])^2}\,dx$$

Optimal (type 3, 142 leaves, 4 steps):

$$-\frac{3(\mathrm{i}A-3B)x}{4a^2}+\frac{(A+2\mathrm{i}B)\,\mathrm{Log}[\mathrm{Cos}[c+dx]]}{a^2 d}+\frac{3(\mathrm{i}A-3B)\,\mathrm{Tan}[c+dx]}{4a^2 d}+\frac{(A+2\mathrm{i}B)\,\mathrm{Tan}[c+dx]^2}{2a^2 d(1+\mathrm{i}\,\mathrm{Tan}[c+dx])}+\frac{(\mathrm{i}A-B)\,\mathrm{Tan}[c+dx]^3}{4d(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}$$

Result (type 3, 956 leaves):

$$-\frac{(2A+3\mathrm{i}B)\,\mathrm{Cos}[2dx]\,\mathrm{Sec}[c+dx]\,(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(A+B\,\mathrm{Tan}[c+dx])}{4d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}+$$

$$\Big(\mathrm{Sec}[c+dx]\,(A\,\mathrm{Cos}[c]+2\mathrm{i}B\,\mathrm{Cos}[c]+\mathrm{i}A\,\mathrm{Sin}[c]-2B\,\mathrm{Sin}[c])\,(-\mathrm{i}\,\mathrm{ArcTan}[\mathrm{Tan}[dx]]\,\mathrm{Cos}[c]+\mathrm{ArcTan}[\mathrm{Tan}[dx]]\,\mathrm{Sin}[c])$$
$$(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(A+B\,\mathrm{Tan}[c+dx])\Big)\Big/\left(d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)+$$

$$\left(\mathrm{Sec}[c+dx]\,(A\,\mathrm{Cos}[c]+2\mathrm{i}B\,\mathrm{Cos}[c]+\mathrm{i}A\,\mathrm{Sin}[c]-2B\,\mathrm{Sin}[c])\left(\frac{1}{2}\mathrm{Cos}[c]\,\mathrm{Log}\left[\mathrm{Cos}[c+dx]^2\right]+\frac{1}{2}\mathrm{i}\,\mathrm{Log}\left[\mathrm{Cos}[c+dx]^2\right]\mathrm{Sin}[c]\right)\right.$$
$$\left.(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)+$$

$$\left((A+\mathrm{i}B)\,\mathrm{Cos}[4dx]\,\mathrm{Sec}[c+dx]\left(\frac{1}{16}\mathrm{Cos}[2c]-\frac{1}{16}\mathrm{i}\,\mathrm{Sin}[2c]\right)(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/$$
$$\left(d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)+$$

$$\frac{(-\mathrm{i}A+3B)\,\mathrm{Sec}[c+dx]\left(\frac{3}{4}dx\,\mathrm{Cos}[2c]+\frac{3}{4}\mathrm{i}dx\,\mathrm{Sin}[2c]\right)(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(A+B\,\mathrm{Tan}[c+dx])}{d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}+$$

$$\frac{\mathrm{i}(2A+3\mathrm{i}B)\,\mathrm{Sec}[c+dx]\,(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,\mathrm{Sin}[2dx]\,(A+B\,\mathrm{Tan}[c+dx])}{4d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}+$$

$$\left((-\mathrm{i}A+B)\,\mathrm{Sec}[c+dx]\left(\frac{1}{16}\mathrm{Cos}[2c]-\frac{1}{16}\mathrm{i}\,\mathrm{Sin}[2c]\right)(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,\mathrm{Sin}[4dx]\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/$$
$$\left(d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)+$$

$$\left(\mathrm{i}\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+dx]^2\,(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(-B\,\mathrm{Cos}[2c-dx]+B\,\mathrm{Cos}[2c+dx]-\mathrm{i}B\,\mathrm{Sin}[2c-dx]+\mathrm{i}B\,\mathrm{Sin}[2c+dx])\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/$$
$$\left(2d(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)+$$

$$\left(x\,\mathrm{Sec}[c+dx]\,(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^2\,(\mathrm{i}A-2B-A\,\mathrm{Tan}[c]-2\mathrm{i}B\,\mathrm{Tan}[c]+(A+2\mathrm{i}B)\,(-\mathrm{Cos}[2c]-\mathrm{i}\,\mathrm{Sin}[2c])\,\mathrm{Tan}[c])\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/$$
$$\left((A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2\right)$$

- **Problem 49: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+dx]^2\,(A+B\,\mathrm{Tan}[c+dx])}{(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}\,dx$$

Optimal (type 3, 141 leaves, 5 steps):

$$-\frac{3(3A+\mathrm{i}B)x}{4a^2}-\frac{3(3A+\mathrm{i}B)\,\mathrm{Cot}[c+dx]}{4a^2 d}-\frac{(2\mathrm{i}A-B)\,\mathrm{Log}[\mathrm{Sin}[c+dx]]}{a^2 d}+\frac{(2A+\mathrm{i}B)\,\mathrm{Cot}[c+dx]}{2a^2 d(1+\mathrm{i}\,\mathrm{Tan}[c+dx])}+\frac{(A+\mathrm{i}B)\,\mathrm{Cot}[c+dx]}{4d(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^2}$$

Result (type 3, 960 leaves):

$$\frac{(-3\,i\,A+2\,B)\,\mathrm{Cos}[2\,d\,x]\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{4\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\Big(\mathrm{Sec}[c+d\,x]\,(-2\,i\,A\,\mathrm{Cos}[c]+B\,\mathrm{Cos}[c]+2\,A\,\mathrm{Sin}[c]+i\,B\,\mathrm{Sin}[c])\,(-i\,\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,\mathrm{Cos}[c]+\mathrm{ArcTan}[\mathrm{Tan}[d\,x]]\,\mathrm{Sin}[c])\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)+$$

$$\Big(\mathrm{Sec}[c+d\,x]\,(-2\,i\,A\,\mathrm{Cos}[c]+B\,\mathrm{Cos}[c]+2\,A\,\mathrm{Sin}[c]+i\,B\,\mathrm{Sin}[c])\left(\frac{1}{2}\,\mathrm{Cos}[c]\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]+\frac{1}{2}\,i\,\mathrm{Log}\big[\mathrm{Sin}[c+d\,x]^2\big]\,\mathrm{Sin}[c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)+$$

$$\Big(x\,\mathrm{Sec}[c+d\,x]\,(-2\,A-i\,B+2\,i\,A\,\mathrm{Cot}[c]-B\,\mathrm{Cot}[c]+(-2\,i\,A+B)\,\mathrm{Cot}[c]\,(\mathrm{Cos}[2\,c]+i\,\mathrm{Sin}[2\,c]))\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big((A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)+$$

$$\Big((-i\,A+B)\,\mathrm{Cos}[4\,d\,x]\,\mathrm{Sec}[c+d\,x]\left(\frac{1}{16}\,\mathrm{Cos}[2\,c]-\frac{1}{16}\,i\,\mathrm{Sin}[2\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)+$$

$$\frac{(3\,A+i\,B)\,\mathrm{Sec}[c+d\,x]\left(-\frac{3}{4}\,d\,x\,\mathrm{Cos}[2\,c]-\frac{3}{4}\,i\,d\,x\,\mathrm{Sin}[2\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}-$$

$$\frac{(3\,A+2\,i\,B)\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,\mathrm{Sin}[2\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{4\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\Big((A+i\,B)\,\mathrm{Sec}[c+d\,x]\left(-\frac{1}{16}\,\mathrm{Cos}[2\,c]+\frac{1}{16}\,i\,\mathrm{Sin}[2\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\,\mathrm{Sin}[4\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)+$$

$$\Big(\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\,\mathrm{Sec}[c+d\,x]\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^2\left(\frac{1}{2}\,i\,A\,\mathrm{Cos}[2\,c-d\,x]-\frac{1}{2}\,i\,A\,\mathrm{Cos}[2\,c+d\,x]-\frac{1}{2}\,A\,\mathrm{Sin}[2\,c-d\,x]+\frac{1}{2}\,A\,\mathrm{Sin}[2\,c+d\,x]\right)(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2\Big)$$

Problem 50: Result more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cot}[c+d\,x]^3\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 170 leaves, 6 steps):

$$\frac{3\,(5\,i\,A-3\,B)\,x}{4\,a^2}+\frac{3\,(5\,i\,A-3\,B)\,\mathrm{Cot}[c+d\,x]}{4\,a^2\,d}-\frac{(2\,A+i\,B)\,\mathrm{Cot}[c+d\,x]^2}{a^2\,d}-\frac{2\,(2\,A+i\,B)\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{a^2\,d}+\frac{(5\,A+3\,i\,B)\,\mathrm{Cot}[c+d\,x]^2}{4\,a^2\,d\,(1+i\,\mathrm{Tan}[c+d\,x])}+\frac{(A+i\,B)\,\mathrm{Cot}[c+d\,x]^2}{4\,d\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}$$

Result (type 3, 1112 leaves):

$$-\frac{(4 A+3 i B)\,\text{Cos}[2 d x]\,\text{Sec}[c+d x]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])}{4 d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2}+$$

$$\Big(\text{Sec}[c+d x]\,(2 A\,\text{Cos}[c]+i B\,\text{Cos}[c]+2 i A\,\text{Sin}[c]-B\,\text{Sin}[c])\,(2 i\,\text{ArcTan}[\text{Tan}[d x]]\,\text{Cos}[c]-2\,\text{ArcTan}[\text{Tan}[d x]]\,\text{Sin}[c])$$
$$(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)+$$

$$\Big(\text{Sec}[c+d x]\,(2 A\,\text{Cos}[c]+i B\,\text{Cos}[c]+2 i A\,\text{Sin}[c]-B\,\text{Sin}[c])\,\Big(-\text{Cos}[c]\,\text{Log}\big[\text{Sin}[c+d x]^2\big]-i\,\text{Log}\big[\text{Sin}[c+d x]^2\big]\,\text{Sin}[c]\Big)$$
$$(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)+$$

$$\Big(x\,\text{Sec}[c+d x]\,(4 i A-2 B+4 A\,\text{Cot}[c]+2 i B\,\text{Cot}[c]+(2 A+i B)\,\text{Cot}[c]\,(-2\,\text{Cos}[2 c]-2 i\,\text{Sin}[2 c]))$$
$$(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\Big((A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)+$$

$$\left((A+i B)\,\text{Cos}[4 d x]\,\text{Sec}[c+d x]\left(-\frac{1}{16}\text{Cos}[2 c]+\frac{1}{16} i\,\text{Sin}[2 c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)+$$

$$\frac{\text{Csc}[c+d x]^2\,\text{Sec}[c+d x]\left(-\frac{1}{2} A\,\text{Cos}[2 c]-\frac{1}{2} i A\,\text{Sin}[2 c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2}+$$

$$\frac{(5 A+3 i B)\,\text{Sec}[c+d x]\left(\frac{3}{4} i d x\,\text{Cos}[2 c]-\frac{3}{4} d x\,\text{Sin}[2 c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A+B\,\text{Tan}[c+d x])}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2}+$$

$$\frac{i\,(4 A+3 i B)\,\text{Sec}[c+d x]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,\text{Sin}[2 d x]\,(A+B\,\text{Tan}[c+d x])}{4 d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2}+$$

$$\left((A+i B)\,\text{Sec}[c+d x]\left(\frac{1}{16} i\,\text{Cos}[2 c]+\frac{1}{16}\text{Sin}[2 c]\right)(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,\text{Sin}[4 d x]\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)+\Bigg(\text{Csc}[c]\,\text{Csc}[c+d x]\,\text{Sec}[c+d x]\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2$$
$$\left(A\,\text{Cos}[2 c-d x]+\frac{1}{2} i B\,\text{Cos}[2 c-d x]-A\,\text{Cos}[2 c+d x]-\frac{1}{2} i B\,\text{Cos}[2 c+d x]+i A\,\text{Sin}[2 c-d x]-\frac{1}{2} B\,\text{Sin}[2 c-d x]-\right.$$
$$\left. i A\,\text{Sin}[2 c+d x]+\frac{1}{2} B\,\text{Sin}[2 c+d x]\right)(A+B\,\text{Tan}[c+d x])\Bigg)\Big/\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^2\Big)$$

- **Problem 51: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d x]^4\,(A+B\,\text{Tan}[c+d x])}{(a+i a\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 191 leaves, 5 steps):

$$-\frac{(7 A+25 i B)\,x}{8 a^3}-\frac{(i A-3 B)\,\text{Log}[\text{Cos}[c+d x]]}{a^3 d}+\frac{(7 A+25 i B)\,\text{Tan}[c+d x]}{8 a^3 d}+$$
$$\frac{(i A-B)\,\text{Tan}[c+d x]^4}{6 d\,(a+i a\,\text{Tan}[c+d x])^3}+\frac{(5 A+11 i B)\,\text{Tan}[c+d x]^3}{24 a d\,(a+i a\,\text{Tan}[c+d x])^2}-\frac{(i A-3 B)\,\text{Tan}[c+d x]^2}{2 d\,\left(a^3+i a^3\,\text{Tan}[c+d x]\right)}$$

Result (type 3, 1251 leaves):

$$\frac{(11\,A+23\,i\,B)\,\mathrm{Cos}[2\,d\,x]\,\mathrm{Sec}[c+d\,x]^2\left(\frac{1}{16}\,i\,\mathrm{Cos}[c]-\frac{\mathrm{Sin}[c]}{16}\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\frac{(-5\,i\,A+7\,B)\,\mathrm{Cos}[4\,d\,x]\,\mathrm{Sec}[c+d\,x]^2\left(\frac{\mathrm{Cos}[c]}{32}-\frac{1}{32}\,i\,\mathrm{Sin}[c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\left(\mathrm{Sec}[c+d\,x]^2\left(-i\,A\,\mathrm{Cos}\left[\frac{3\,c}{2}\right]+3\,B\,\mathrm{Cos}\left[\frac{3\,c}{2}\right]+A\,\mathrm{Sin}\left[\frac{3\,c}{2}\right]+3\,i\,B\,\mathrm{Sin}\left[\frac{3\,c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{3\,c}{2}\right]\mathrm{Log}[\mathrm{Cos}[c+d\,x]]+i\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sin}\left[\frac{3\,c}{2}\right]\right)\right.$$
$$\left.(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\right)+$$

$$\left((A+i\,B)\,\mathrm{Cos}[6\,d\,x]\,\mathrm{Sec}[c+d\,x]^2\left(\frac{1}{48}\,i\,\mathrm{Cos}[3\,c]+\frac{1}{48}\,\mathrm{Sin}[3\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\right)+$$

$$\left((7\,A+25\,i\,B)\,\mathrm{Sec}[c+d\,x]^2\left(-\frac{1}{8}\,d\,x\,\mathrm{Cos}[3\,c]-\frac{1}{8}\,i\,d\,x\,\mathrm{Sin}[3\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\right)+$$

$$\frac{(11\,A+23\,i\,B)\,\mathrm{Sec}[c+d\,x]^2\left(\frac{\mathrm{Cos}[c]}{16}+\frac{1}{16}\,i\,\mathrm{Sin}[c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,\mathrm{Sin}[2\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\frac{(5\,A+7\,i\,B)\,\mathrm{Sec}[c+d\,x]^2\left(-\frac{\mathrm{Cos}[c]}{32}+\frac{1}{32}\,i\,\mathrm{Sin}[c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,\mathrm{Sin}[4\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}+$$

$$\left((A+i\,B)\,\mathrm{Sec}[c+d\,x]^2\left(\frac{1}{48}\,\mathrm{Cos}[3\,c]-\frac{1}{48}\,i\,\mathrm{Sin}[3\,c]\right)(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,\mathrm{Sin}[6\,d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\right)+$$

$$\left(\mathrm{Sec}[c+d\,x]^3\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(-B\,\mathrm{Cos}[3\,c-d\,x]+B\,\mathrm{Cos}[3\,c+d\,x]-i\,B\,\mathrm{Sin}[3\,c-d\,x]+i\,B\,\mathrm{Sin}[3\,c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,d\left(\mathrm{Cos}\left[\frac{c}{2}\right]-\mathrm{Sin}\left[\frac{c}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{c}{2}\right]+\mathrm{Sin}\left[\frac{c}{2}\right]\right)(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\right)+$$

$$\frac{1}{(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3}$$
$$x\,\mathrm{Sec}[c+d\,x]^2\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\left(\frac{1}{2}\,A\,\mathrm{Cos}[c]+\frac{3}{2}\,i\,B\,\mathrm{Cos}[c]-\frac{1}{2}\,A\,\mathrm{Cos}[c]^3-\frac{3}{2}\,i\,B\,\mathrm{Cos}[c]^3+i\,A\,\mathrm{Sin}[c]-3\,B\,\mathrm{Sin}[c]-\right.$$
$$2\,i\,A\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]+6\,B\,\mathrm{Cos}[c]^2\,\mathrm{Sin}[c]+3\,A\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^2+9\,i\,B\,\mathrm{Cos}[c]\,\mathrm{Sin}[c]^2+2\,i\,A\,\mathrm{Sin}[c]^3-6\,B\,\mathrm{Sin}[c]^3-\frac{1}{2}\,A\,\mathrm{Sin}[c]\,\mathrm{Tan}[c]-$$
$$\left.\frac{3}{2}\,i\,B\,\mathrm{Sin}[c]\,\mathrm{Tan}[c]-\frac{1}{2}\,A\,\mathrm{Sin}[c]^3\,\mathrm{Tan}[c]-\frac{3}{2}\,i\,B\,\mathrm{Sin}[c]^3\,\mathrm{Tan}[c]+i\,(A+3\,i\,B)\,(\mathrm{Cos}[3\,c]+i\,\mathrm{Sin}[3\,c])\,\mathrm{Tan}[c]\right)(A+B\,\mathrm{Tan}[c+d\,x])$$

Problem 57: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 183 leaves, 6 steps):

$$-\frac{(25 A+7 i B) x}{8 a^3}-\frac{(25 A+7 i B) \text{Cot}[c+d x]}{8 a^3 d}-\frac{(3 i A-B) \text{Log}[\text{Sin}[c+d x]]}{a^3 d}+\frac{(A+i B) \text{Cot}[c+d x]}{6 d (a+i a \text{Tan}[c+d x])^3}+\frac{(11 A+5 i B) \text{Cot}[c+d x]}{24 a d (a+i a \text{Tan}[c+d x])^2}+\frac{(3 A+i B) \text{Cot}[c+d x]}{2 d \left(a^3+i a^3 \text{Tan}[c+d x]\right)}$$

Result (type 3, 1282 leaves):

$$\frac{(-7\,i\,A+5\,B)\,\text{Cos}[4\,d\,x]\,\text{Sec}[c+d\,x]^2\left(\frac{\text{Cos}[c]}{32}-\frac{1}{32}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\left((-23\,i\,A+11\,B)\,\text{Cos}[2\,d\,x]\,\text{Sec}[c+d\,x]^2\left(\frac{\text{Cos}[c]}{16}+\frac{1}{16}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\left(\text{Sec}[c+d\,x]^2\left(-3\,i\,A\,\text{Cos}\left[\frac{3\,c}{2}\right]+B\,\text{Cos}\left[\frac{3\,c}{2}\right]+3\,A\,\text{Sin}\left[\frac{3\,c}{2}\right]+i\,B\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(-i\,\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Cos}\left[\frac{3\,c}{2}\right]+\text{ArcTan}[\text{Tan}[d\,x]]\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\left(\text{Sec}[c+d\,x]^2\left(-3\,i\,A\,\text{Cos}\left[\frac{3\,c}{2}\right]+B\,\text{Cos}\left[\frac{3\,c}{2}\right]+3\,A\,\text{Sin}\left[\frac{3\,c}{2}\right]+i\,B\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\left(\frac{1}{2}\,\text{Cos}\left[\frac{3\,c}{2}\right]\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]+\frac{1}{2}\,i\,\text{Log}\left[\text{Sin}[c+d\,x]^2\right]\,\text{Sin}\left[\frac{3\,c}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+\Big(x\,\text{Sec}[c+d\,x]^2$$
$$(-6\,A\,\text{Cos}[c]-2\,i\,B\,\text{Cos}[c]+3\,i\,A\,\text{Cos}[c]\,\text{Cot}[c]-B\,\text{Cos}[c]\,\text{Cot}[c]-3\,i\,A\,\text{Sin}[c]+B\,\text{Sin}[c]+(-3\,i\,A+B)\,\text{Cot}[c]\,(\text{Cos}[3\,c]+i\,\text{Sin}[3\,c]))$$
$$(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\Big)\Big/\left((A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\left((-i\,A+B)\,\text{Cos}[6\,d\,x]\,\text{Sec}[c+d\,x]^2\left(\frac{1}{48}\,\text{Cos}[3\,c]-\frac{1}{48}\,i\,\text{Sin}[3\,c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\left((25\,A+7\,i\,B)\,\text{Sec}[c+d\,x]^2\left(-\frac{1}{8}\,d\,x\,\text{Cos}[3\,c]-\frac{1}{8}\,i\,d\,x\,\text{Sin}[3\,c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\left((23\,A+11\,i\,B)\,\text{Sec}[c+d\,x]^2\left(-\frac{\text{Cos}[c]}{16}-\frac{1}{16}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[2\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+$$

$$\frac{(7\,A+5\,i\,B)\,\text{Sec}[c+d\,x]^2\left(-\frac{\text{Cos}[c]}{32}+\frac{1}{32}\,i\,\text{Sin}[c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[4\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3}+$$

$$\left((A+i\,B)\,\text{Sec}[c+d\,x]^2\left(-\frac{1}{48}\,\text{Cos}[3\,c]+\frac{1}{48}\,i\,\text{Sin}[3\,c]\right)(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,\text{Sin}[6\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)+\left(\text{Csc}\left[\frac{c}{2}\right]\,\text{Csc}[c+d\,x]\,\text{Sec}\left[\frac{c}{2}\right]\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\right.$$
$$\left.\left(\frac{1}{2}\,i\,A\,\text{Cos}[3\,c-d\,x]-\frac{1}{2}\,i\,A\,\text{Cos}[3\,c+d\,x]-\frac{1}{2}\,A\,\text{Sin}[3\,c-d\,x]+\frac{1}{2}\,A\,\text{Sin}[3\,c+d\,x]\right)(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^3\right)$$

- **Problem 58: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 216 leaves, 7 steps):

$$\frac{5 (11 i A-5 B) x}{8 a^3}+\frac{5 (11 i A-5 B) \text{Cot}[c+d x]}{8 a^3 d}-\frac{(7 A+3 i B) \text{Cot}[c+d x]^2}{2 a^3 d}-\frac{(7 A+3 i B) \text{Log}[\text{Sin}[c+d x]]}{a^3 d}+\frac{(A+i B) \text{Cot}[c+d x]^2}{6 d (a+i a \text{Tan}[c+d x])^3}+\frac{(13 A+7 i B) \text{Cot}[c+d x]^2}{24 a d (a+i a \text{Tan}[c+d x])^2}+\frac{5 (11 A+5 i B) \text{Cot}[c+d x]^2}{24 d \left(a^3+i a^3 \text{Tan}[c+d x]\right)}$$

Result (type 3, 1448 leaves):

$$\frac{(9 A+7 i B) \operatorname{Cos}[4 d x] \operatorname{Sec}[c+d x]^2 \left(-\frac{\operatorname{Cos}[c]}{32}+\frac{1}{32} i \operatorname{Sin}[c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])}{d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3}+$$

$$\left((39 A+23 i B) \operatorname{Cos}[2 d x] \operatorname{Sec}[c+d x]^2 \left(-\frac{\operatorname{Cos}[c]}{16}-\frac{1}{16} i \operatorname{Sin}[c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/$$
$$\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+$$

$$\left(\operatorname{Sec}[c+d x]^2 \left(7 A \operatorname{Cos}\left[\frac{3 c}{2}\right]+3 i B \operatorname{Cos}\left[\frac{3 c}{2}\right]+7 i A \operatorname{Sin}\left[\frac{3 c}{2}\right]-3 B \operatorname{Sin}\left[\frac{3 c}{2}\right]\right) \left(i \operatorname{ArcTan}[\operatorname{Tan}[d x]] \operatorname{Cos}\left[\frac{3 c}{2}\right]-\operatorname{ArcTan}[\operatorname{Tan}[d x]] \operatorname{Sin}\left[\frac{3 c}{2}\right]\right)\right.$$
$$\left.(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+$$

$$\left(\operatorname{Sec}[c+d x]^2 \left(7 A \operatorname{Cos}\left[\frac{3 c}{2}\right]+3 i B \operatorname{Cos}\left[\frac{3 c}{2}\right]+7 i A \operatorname{Sin}\left[\frac{3 c}{2}\right]-3 B \operatorname{Sin}\left[\frac{3 c}{2}\right]\right) \left(-\frac{1}{2} \operatorname{Cos}\left[\frac{3 c}{2}\right] \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right]-\frac{1}{2} i \operatorname{Log}\left[\operatorname{Sin}[c+d x]^2\right] \operatorname{Sin}\left[\frac{3 c}{2}\right]\right)\right.$$
$$\left.(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+\left(x \operatorname{Sec}[c+d x]^2\right.$$
$$(14 i A \operatorname{Cos}[c]-6 B \operatorname{Cos}[c]+7 A \operatorname{Cos}[c] \operatorname{Cot}[c]+3 i B \operatorname{Cos}[c] \operatorname{Cot}[c]-7 A \operatorname{Sin}[c]-3 i B \operatorname{Sin}[c]+(7 A+3 i B) \operatorname{Cot}[c] (-\operatorname{Cos}[3 c]-i \operatorname{Sin}[3 c]))$$
$$\left.(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/\left((A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+$$

$$\left((A+i B) \operatorname{Cos}[6 d x] \operatorname{Sec}[c+d x]^2 \left(-\frac{1}{48} \operatorname{Cos}[3 c]+\frac{1}{48} i \operatorname{Sin}[3 c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/$$
$$\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+$$

$$\frac{\operatorname{Csc}[c+d x]^2 \operatorname{Sec}[c+d x]^2 \left(-\frac{1}{2} A \operatorname{Cos}[3 c]-\frac{1}{2} i A \operatorname{Sin}[3 c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])}{d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3}+$$

$$\left((11 A+5 i B) \operatorname{Sec}[c+d x]^2 \left(\frac{5}{8} i d x \operatorname{Cos}[3 c]-\frac{5}{8} d x \operatorname{Sin}[3 c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A+B \operatorname{Tan}[c+d x])\right)/$$
$$\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+$$

$$\frac{(39 A+23 i B) \operatorname{Sec}[c+d x]^2 \left(\frac{1}{16} i \operatorname{Cos}[c]-\frac{\operatorname{Sin}[c]}{16}\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 \operatorname{Sin}[2 d x] (A+B \operatorname{Tan}[c+d x])}{d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3}+$$

$$\frac{(9 A+7 i B) \operatorname{Sec}[c+d x]^2 \left(\frac{1}{32} i \operatorname{Cos}[c]+\frac{\operatorname{Sin}[c]}{32}\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 \operatorname{Sin}[4 d x] (A+B \operatorname{Tan}[c+d x])}{d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3}+$$

$$\left((A+i B) \operatorname{Sec}[c+d x]^2 \left(\frac{1}{48} i \operatorname{Cos}[3 c]+\frac{1}{48} \operatorname{Sin}[3 c]\right) (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 \operatorname{Sin}[6 d x] (A+B \operatorname{Tan}[c+d x])\right)/$$
$$\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)+\left(\operatorname{Csc}\left[\frac{c}{2}\right] \operatorname{Csc}[c+d x] \operatorname{Sec}\left[\frac{c}{2}\right] \operatorname{Sec}[c+d x]^2 (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3\right.$$
$$\left(\frac{3}{2} A \operatorname{Cos}[3 c-d x]+\frac{1}{2} i B \operatorname{Cos}[3 c-d x]-\frac{3}{2} A \operatorname{Cos}[3 c+d x]-\frac{1}{2} i B \operatorname{Cos}[3 c+d x]+\frac{3}{2} i A \operatorname{Sin}[3 c-d x]-\frac{1}{2} B \operatorname{Sin}[3 c-d x]-\right.$$
$$\left.\left.\frac{3}{2} i A \operatorname{Sin}[3 c+d x]+\frac{1}{2} B \operatorname{Sin}[3 c+d x]\right) (A+B \operatorname{Tan}[c+d x])\right)/\left(2 d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+i a \operatorname{Tan}[c+d x])^3\right)$$

Problem 65: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 220 leaves, 7 steps):

$$-\frac{5 (13 A+3 i B) x}{16 a^4}-\frac{5 (13 A+3 i B) \text{Cot}[c+d x]}{16 a^4 d}-\frac{(4 i A-B) \text{Log}[\text{Sin}[c+d x]]}{a^4 d}+\frac{(31 A+9 i B) \text{Cot}[c+d x]}{48 a^4 d (1+i \text{Tan}[c+d x])^2}+\frac{(4 A+i B) \text{Cot}[c+d x]}{2 a^4 d (1+i \text{Tan}[c+d x])}+\frac{(A+i B) \text{Cot}[c+d x]}{8 d (a+i a \text{Tan}[c+d x])^4}+\frac{(7 A+3 i B) \text{Cot}[c+d x]}{24 a d (a+i a \text{Tan}[c+d x])^3}$$

Result (type 3, 1466 leaves):

$$\frac{(-15 i A+8 B) \text{Cos}[4 d x] \text{Sec}[c+d x]^3 (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])}{32 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4}+$$

$$\left((-4 i A+3 B) \text{Cos}[6 d x] \text{Sec}[c+d x]^3 \left(\frac{1}{48} \text{Cos}[2 c]-\frac{1}{48} i \text{Sin}[2 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left((-36 i A+13 B) \text{Cos}[2 d x] \text{Sec}[c+d x]^3 \left(\frac{1}{16} \text{Cos}[2 c]+\frac{1}{16} i \text{Sin}[2 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left(\text{Sec}[c+d x]^3 (-4 i A \text{Cos}[2 c]+B \text{Cos}[2 c]+4 A \text{Sin}[2 c]+i B \text{Sin}[2 c]) (-i \text{ArcTan}[\text{Tan}[d x]] \text{Cos}[2 c]+\text{ArcTan}[\text{Tan}[d x]] \text{Sin}[2 c]) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left(\text{Sec}[c+d x]^3 (-4 i A \text{Cos}[2 c]+B \text{Cos}[2 c]+4 A \text{Sin}[2 c]+i B \text{Sin}[2 c]) \left(\frac{1}{2} \text{Cos}[2 c] \text{Log}\left[\text{Sin}[c+d x]^2\right]+\frac{1}{2} i \text{Log}\left[\text{Sin}[c+d x]^2\right] \text{Sin}[2 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left(x \text{Sec}[c+d x]^3 \left(-12 A \text{Cos}[c]^2-3 i B \text{Cos}[c]^2+4 i A \text{Cos}[c]^2 \text{Cot}[c]-B \text{Cos}[c]^2 \text{Cot}[c]-12 i A \text{Cos}[c] \text{Sin}[c]+3 B \text{Cos}[c] \text{Sin}[c]+4 A \text{Sin}[c]^2+i B \text{Sin}[c]^2+(-4 i A+B) \text{Cot}[c] (\text{Cos}[4 c]+i \text{Sin}[4 c])\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left((A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left((-i A+B) \text{Cos}[8 d x] \text{Sec}[c+d x]^3 \left(\frac{1}{128} \text{Cos}[4 c]-\frac{1}{128} i \text{Sin}[4 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left((13 A+3 i B) \text{Sec}[c+d x]^3 \left(-\frac{5}{16} d x \text{Cos}[4 c]-\frac{5}{16} i d x \text{Sin}[4 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)+$$

$$\left((36 A+13 i B) \text{Sec}[c+d x]^3 \left(-\frac{1}{16} \text{Cos}[2 c]-\frac{1}{16} i \text{Sin}[2 c]\right) (\text{Cos}[d x]+i \text{Sin}[d x])^4 \text{Sin}[2 d x] (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^4\right)-$$

$$\frac{(15A+8iB)\,Sec[c+dx]^3\,(Cos[dx]+i\,Sin[dx])^4\,Sin[4dx]\,(A+B\,Tan[c+dx])}{32d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4}+$$
$$\left((4A+3iB)\,Sec[c+dx]^3\left(-\frac{1}{48}Cos[2c]+\frac{1}{48}i\,Sin[2c]\right)(Cos[dx]+i\,Sin[dx])^4\,Sin[6dx]\,(A+B\,Tan[c+dx])\right)\Big/$$
$$\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$
$$\left((A+iB)\,Sec[c+dx]^3\left(-\frac{1}{128}Cos[4c]+\frac{1}{128}i\,Sin[4c]\right)(Cos[dx]+i\,Sin[dx])^4\,Sin[8dx]\,(A+B\,Tan[c+dx])\right)\Big/$$
$$\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$
$$\left(Csc[c]\,Csc[c+dx]\,Sec[c+dx]^3\,(Cos[dx]+i\,Sin[dx])^4\left(\frac{1}{2}i\,A\,Cos[4c-dx]-\frac{1}{2}i\,A\,Cos[4c+dx]-\frac{1}{2}A\,Sin[4c-dx]+\frac{1}{2}A\,Sin[4c+dx]\right)\right.$$
$$\left.(A+B\,Tan[c+dx])\right)\Big/\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)$$

- **Problem 66: Result more than twice size of optimal antiderivative.**

$$\int\frac{Cot[c+dx]^3\,(A+B\,Tan[c+dx])}{(a+i\,a\,Tan[c+dx])^4}\,dx$$

Optimal (type 3, 255 leaves, 8 steps):

$$\frac{5\,(35iA-13B)\,x}{16a^4}+\frac{5\,(35iA-13B)\,Cot[c+dx]}{16a^4d}-\frac{(11A+4iB)\,Cot[c+dx]^2}{2a^4d}-\frac{(11A+4iB)\,Log[Sin[c+dx]]}{a^4d}+$$
$$\frac{(43A+17iB)\,Cot[c+dx]^2}{48a^4d\,(1+i\,Tan[c+dx])^2}+\frac{5\,(35A+13iB)\,Cot[c+dx]^2}{48a^4d\,(1+i\,Tan[c+dx])}+\frac{(A+iB)\,Cot[c+dx]^2}{8d\,(a+i\,a\,Tan[c+dx])^4}+\frac{(2A+iB)\,Cot[c+dx]^2}{6ad\,(a+i\,a\,Tan[c+dx])^3}$$

Result (type 3, 1625 leaves):

$$-\frac{3\,(8A+5iB)\,Cos[4dx]\,Sec[c+dx]^3\,(Cos[dx]+i\,Sin[dx])^4\,(A+B\,Tan[c+dx])}{32d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4}+$$
$$\left((5A+4iB)\,Cos[6dx]\,Sec[c+dx]^3\left(-\frac{1}{48}Cos[2c]+\frac{1}{48}i\,Sin[2c]\right)(Cos[dx]+i\,Sin[dx])^4\,(A+B\,Tan[c+dx])\right)\Big/$$
$$\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$
$$\left((25A+12iB)\,Cos[2dx]\,Sec[c+dx]^3\left(-\frac{3}{16}Cos[2c]-\frac{3}{16}i\,Sin[2c]\right)(Cos[dx]+i\,Sin[dx])^4\,(A+B\,Tan[c+dx])\right)\Big/$$
$$\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$
$$\left(Sec[c+dx]^3\,(11A\,Cos[2c]+4iB\,Cos[2c]+11iA\,Sin[2c]-4B\,Sin[2c])\,(i\,ArcTan[Tan[dx]]\,Cos[2c]-ArcTan[Tan[dx]]\,Sin[2c])\right.$$
$$\left.(Cos[dx]+i\,Sin[dx])^4\,(A+B\,Tan[c+dx])\right)\Big/\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$
$$\left(Sec[c+dx]^3\,(11A\,Cos[2c]+4iB\,Cos[2c]+11iA\,Sin[2c]-4B\,Sin[2c])\left(-\frac{1}{2}Cos[2c]\,Log\left[Sin[c+dx]^2\right]-\frac{1}{2}i\,Log\left[Sin[c+dx]^2\right]Sin[2c]\right)\right.$$
$$\left.(Cos[dx]+i\,Sin[dx])^4\,(A+B\,Tan[c+dx])\right)\Big/\left(d\,(A\,Cos[c+dx]+B\,Sin[c+dx])\,(a+i\,a\,Tan[c+dx])^4\right)+$$

$$\left(x\,\text{Sec}[c+d\,x]^3\,\left(33\,i\,A\,\text{Cos}[c]^2-12\,B\,\text{Cos}[c]^2+11\,A\,\text{Cos}[c]^2\,\text{Cot}[c]+4\,i\,B\,\text{Cos}[c]^2\,\text{Cot}[c]-33\,A\,\text{Cos}[c]\,\text{Sin}[c]-12\,i\,B\,\text{Cos}[c]\,\text{Sin}[c]-11\,i\,A\,\text{Sin}[c]^2+4\,B\,\text{Sin}[c]^2+(11\,A+4\,i\,B)\,\text{Cot}[c]\,(-\text{Cos}[4\,c]-i\,\text{Sin}[4\,c])\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left((A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+$$

$$\left((A+i\,B)\,\text{Cos}[8\,d\,x]\,\text{Sec}[c+d\,x]^3\,\left(-\frac{1}{128}\,\text{Cos}[4\,c]+\frac{1}{128}\,i\,\text{Sin}[4\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+$$

$$\frac{\text{Csc}[c+d\,x]^2\,\text{Sec}[c+d\,x]^3\,\left(-\frac{1}{2}\,A\,\text{Cos}[4\,c]-\frac{1}{2}\,i\,A\,\text{Sin}[4\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4}+$$

$$\left((35\,A+13\,i\,B)\,\text{Sec}[c+d\,x]^3\,\left(\frac{5}{16}\,i\,d\,x\,\text{Cos}[4\,c]-\frac{5}{16}\,d\,x\,\text{Sin}[4\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+$$

$$\left((25\,A+12\,i\,B)\,\text{Sec}[c+d\,x]^3\,\left(\frac{3}{16}\,i\,\text{Cos}[2\,c]-\frac{3}{16}\,\text{Sin}[2\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\text{Sin}[2\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+$$

$$\frac{3\,i\,(8\,A+5\,i\,B)\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\text{Sin}[4\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{32\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4}+$$

$$\left((5\,A+4\,i\,B)\,\text{Sec}[c+d\,x]^3\,\left(\frac{1}{48}\,i\,\text{Cos}[2\,c]+\frac{1}{48}\,\text{Sin}[2\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\text{Sin}[6\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+$$

$$\left((A+i\,B)\,\text{Sec}[c+d\,x]^3\,\left(\frac{1}{128}\,i\,\text{Cos}[4\,c]+\frac{1}{128}\,\text{Sin}[4\,c]\right)\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\text{Sin}[8\,d\,x]\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)+\left(\text{Csc}[c]\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^4\,\left(2\,A\,\text{Cos}[4\,c-d\,x]+\frac{1}{2}\,i\,B\,\text{Cos}[4\,c-d\,x]-2\,A\,\text{Cos}[4\,c+d\,x]-\frac{1}{2}\,i\,B\,\text{Cos}[4\,c+d\,x]+2\,i\,A\,\text{Sin}[4\,c-d\,x]-\frac{1}{2}\,B\,\text{Sin}[4\,c-d\,x]-2\,i\,A\,\text{Sin}[4\,c+d\,x]+\frac{1}{2}\,B\,\text{Sin}[4\,c+d\,x]\right)\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^4\right)$$

- **Problem 71: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 86 leaves, 6 steps):

$$-\frac{2\,\sqrt{a}\,A\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{\sqrt{2}\,\sqrt{a}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}$$

Result (type 3, 192 leaves):

$$\frac{1}{2\,d}e^{-i\,(c+d\,x)}\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\left(2\,(A-i\,B)\,\text{ArcSinh}\left[e^{i\,(c+d\,x)}\right]+\sqrt{2}\,A\left(\text{Log}\left[1-e^{i\,(c+d\,x)}\right]-\text{Log}\left[1+e^{i\,(c+d\,x)}\right]+\text{Log}\left[1-e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]-\text{Log}\left[1+e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]\right)\right)\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}$$

- **Problem 72: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^2\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 123 leaves, 7 steps):

$$-\frac{\sqrt{a}\,\,(i\,A+2\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{d}+\frac{\sqrt{2}\,\sqrt{a}\,\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}-\frac{A\,\text{Cot}[c+d\,x]\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 3, 293 leaves):

$$\frac{1}{8\,d}\left(-8\,A\,\text{Cot}[c+d\,x]+e^{-i\,(c+d\,x)}\sqrt{1+e^{2\,i\,(c+d\,x)}}\,\left(8\,(i\,A+B)\,\text{ArcSinh}\left[e^{i\,(c+d\,x)}\right]+\sqrt{2}\,\,(i\,A+2\,B)\left(\text{Log}\left[\left(-1+e^{i\,(c+d\,x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i\,(c+d\,x)}\right)^2\right]+\text{Log}\left[3+3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}-2\,e^{i\,(c+d\,x)}\left(1+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right)\right]-\text{Log}\left[3+3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}+2\,e^{i\,(c+d\,x)}\left(1+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right)\right]\right)\right)\right)\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}$$

- **Problem 73: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^3\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 169 leaves, 8 steps):

$$\frac{\sqrt{a}\,\,(7\,A-4\,i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,d}-\frac{\sqrt{2}\,\sqrt{a}\,\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{d}-\frac{(i\,A+4\,B)\,\text{Cot}[c+d\,x]\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{4\,d}-\frac{A\,\text{Cot}[c+d\,x]^2\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{2\,d}$$

Result (type 3, 388 leaves):

$$\left(\left(-\left(2\left(16\sqrt{2}\,(A-iB)\,\text{ArcSinh}\left[e^{i(c+dx)}\right]+(7A-4iB)\left(\text{Log}\left[\left(-1+e^{i(c+dx)}\right)^2\right]-\text{Log}\left[\left(1+e^{i(c+dx)}\right)^2\right]+\text{Log}\left[3+3e^{2i(c+dx)}+2\sqrt{2}\sqrt{1+e^{2i(c+dx)}}-2e^{i(c+dx)}\left(1+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right)\right]-\text{Log}\left[3+3e^{2i(c+dx)}+2\sqrt{2}\sqrt{1+e^{2i(c+dx)}}+2e^{i(c+dx)}\left(1+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right)\right]\right)\right)\right)\Big/\left(\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\sqrt{1+e^{2i(c+dx)}}\right)-\frac{8\,\text{Csc}[c+dx]\,(2A\,\text{Csc}[c+dx]+(iA+4B)\,\text{Sec}[c+dx])}{\text{Sec}[c+dx]^{3/2}}\right)\sqrt{a+ia\,\text{Tan}[c+dx]}\,(A+B\,\text{Tan}[c+dx])\right)\Big/\left(32\,d\,\text{Sec}[c+dx]^{3/2}\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)$$

Problem 78: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+dx]\,(a+ia\,\text{Tan}[c+dx])^{3/2}\,(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 113 leaves, 7 steps) :

$$-\frac{2a^{3/2}A\,\text{ArcTanh}\left[\frac{\sqrt{a+ia\,\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{d}+\frac{2\sqrt{2}\,a^{3/2}\,(A-iB)\,\text{ArcTanh}\left[\frac{\sqrt{a+ia\,\text{Tan}[c+dx]}}{\sqrt{2}\sqrt{a}}\right]}{d}+\frac{2iaB\sqrt{a+ia\,\text{Tan}[c+dx]}}{d}$$

Result (type 3, 287 leaves) :

$$\frac{1}{\sqrt{2}\,d}a\,e^{-i(c+dx)}\left(2i\sqrt{2}\,B\,e^{i(c+dx)}+2\sqrt{2}\,(A-iB)\sqrt{1+e^{2i(c+dx)}}\,\text{ArcSinh}\left[e^{i(c+dx)}\right]+A\sqrt{1+e^{2i(c+dx)}}\,\text{Log}\left[1-e^{i(c+dx)}\right]-A\sqrt{1+e^{2i(c+dx)}}\,\text{Log}\left[1+e^{i(c+dx)}\right]+A\sqrt{1+e^{2i(c+dx)}}\,\text{Log}\left[1-e^{i(c+dx)}+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right]-A\sqrt{1+e^{2i(c+dx)}}\,\text{Log}\left[1+e^{i(c+dx)}+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right]\right)\sqrt{a+ia\,\text{Tan}[c+dx]}$$

Problem 79: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+dx]^2\,(a+ia\,\text{Tan}[c+dx])^{3/2}\,(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 125 leaves, 7 steps) :

$$-\frac{a^{3/2}\,(3iA+2B)\,\text{ArcTanh}\left[\frac{\sqrt{a+ia\,\text{Tan}[c+dx]}}{\sqrt{a}}\right]}{d}+\frac{2\sqrt{2}\,a^{3/2}\,(iA+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+ia\,\text{Tan}[c+dx]}}{\sqrt{2}\sqrt{a}}\right]}{d}-\frac{aA\,\text{Cot}[c+dx]\sqrt{a+ia\,\text{Tan}[c+dx]}}{d}$$

Result (type 3, 496 leaves) :

$$\left(e^{-i c}\sqrt{e^{i d x}}\left(16\,(i A+B)\,\text{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2}\,(3 i A+2 B)\right.\right.$$
$$\left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]-\right.$$
$$\left.\left.\left.\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right)(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(4\sqrt{2}\,d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\,\text{Sec}[c+d x]^{5/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^{3/2}\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+$$
$$\left(\text{Cos}[c+d x]^2\,(\text{Cot}[c]\,(-A\,\text{Cos}[c]+i A\,\text{Sin}[c])+A\,\text{Csc}[c]\,\text{Csc}[c+d x]\,(\text{Cos}[c]-i\,\text{Sin}[c])\,\text{Sin}[d x])\right.$$
$$\left.(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\right)\Big/\left(d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 80: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^3\,(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 171 leaves, 8 steps):

$$\frac{a^{3/2}\,(11 A-12 i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 d}-\frac{2\sqrt{2}\,a^{3/2}\,(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\right]}{d}-$$
$$\frac{a\,(5 i A+4 B)\,\text{Cot}[c+d x]\sqrt{a+i a\,\text{Tan}[c+d x]}}{4 d}-\frac{a A\,\text{Cot}[c+d x]^2\sqrt{a+i a\,\text{Tan}[c+d x]}}{2 d}$$

Result (type 3, 565 leaves):

$$-\Bigg(\Bigg(e^{-i c}\sqrt{e^{i d x}}\Big(64\,(A-i B)\,\text{ArcSinh}\big[e^{i (c+d x)}\big]+\sqrt{2}\,(11 A-12 i B)$$

$$\Big(\text{Log}\big[\big(-1+e^{i (c+d x)}\big)^2\big]-\text{Log}\big[\big(1+e^{i (c+d x)}\big)^2\big]+\text{Log}\Big[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\Big(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\Big)\Big]-$$

$$\text{Log}\Big[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\Big(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\Big)\Big]\Big)\Big)\,(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\Bigg)\Bigg/$$

$$\Bigg(16\sqrt{2}\,d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\,\text{Sec}[c+d x]^{5/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^{3/2}\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\Bigg)\Bigg)+$$

$$\Bigg(\text{Cos}[c+d x]^2\Bigg(\text{Csc}[c+d x]^2\left(-\frac{1}{2}A\,\text{Cos}[c]+\frac{1}{2}i A\,\text{Sin}[c]\right)-i\,\text{Csc}[c]\left(\frac{\text{Cos}[c]}{4}-\frac{1}{4}i\,\text{Sin}[c]\right)(5 A\,\text{Cos}[c]-4 i B\,\text{Cos}[c]+2 i A\,\text{Sin}[c])+$$

$$\text{Csc}[c]\,\text{Csc}[c+d x]\left(\frac{\text{Cos}[c]}{4}-\frac{1}{4}i\,\text{Sin}[c]\right)(5 i A\,\text{Sin}[d x]+4 B\,\text{Sin}[d x])\Bigg)$$

$$(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\Bigg)\Bigg/\,(d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x]))$$

- **Problem 81: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^4\,(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 213 leaves, 9 steps):

$$\frac{a^{3/2}\,(23 i A+22 B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{8 d}-\frac{2\sqrt{2}\,a^{3/2}\,(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\right]}{d}+$$

$$\frac{a\,(9 A-10 i B)\,\text{Cot}[c+d x]\sqrt{a+i a\,\text{Tan}[c+d x]}}{8 d}-\frac{a\,(7 i A+6 B)\,\text{Cot}[c+d x]^2\sqrt{a+i a\,\text{Tan}[c+d x]}}{12 d}-\frac{a A\,\text{Cot}[c+d x]^3\sqrt{a+i a\,\text{Tan}[c+d x]}}{3 d}$$

Result (type 3, 613 leaves):

$$-\left(\left(i\, e^{-i c}\sqrt{e^{i d x}}\left(128\,(A-i B)\,\text{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2}\,(23 A-22 i B)\right.\right.\right.$$
$$\left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]-\right.$$
$$\left.\left.\left.\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right)(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left.\left(32\sqrt{2}\, d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\,\text{Sec}[c+d x]^{5/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^{3/2}\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)\right)+$$
$$\frac{1}{d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])}$$
$$\text{Cos}[c+d x]^2$$
$$\left((7 A-6 i B)\,\text{Csc}[c]\left(\frac{\text{Cos}[c]}{24}-\frac{1}{24} i\,\text{Sin}[c]\right)(5\,\text{Cos}[c]+2 i\,\text{Sin}[c])+\text{Csc}[c]\,\text{Csc}[c+d x]^2\left(\frac{\text{Cos}[c]}{12}-\frac{1}{12} i\,\text{Sin}[c]\right)\right.$$
$$(-4 A\,\text{Cos}[c]-7 i A\,\text{Sin}[c]-6 B\,\text{Sin}[c])+A\,\text{Csc}[c]\,\text{Csc}[c+d x]^3\left(\frac{\text{Cos}[c]}{3}-\frac{1}{3} i\,\text{Sin}[c]\right)\text{Sin}[d x]+$$
$$\left.\text{Csc}[c]\,\text{Csc}[c+d x]\left(-\frac{5\,\text{Cos}[c]}{24}+\frac{5}{24} i\,\text{Sin}[c]\right)(7 A\,\text{Sin}[d x]-6 i B\,\text{Sin}[d x])\right)(a+i a\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])$$

- **Problem 85: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]\,(a+i a\,\text{Tan}[c+d x])^{5/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 147 leaves, 8 steps):

$$-\frac{2 a^{5/2} A\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{4\sqrt{2}\, a^{5/2}\,(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\right]}{d}-$$
$$\frac{2 a^2\,(A-2 i B)\sqrt{a+i a\,\text{Tan}[c+d x]}}{d}+\frac{2 i a B\,(a+i a\,\text{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 429 leaves):

$$\left(e^{-2 i c} \sqrt{e^{i d x}} \left(8 (A - i B) \text{ArcSinh}\left[e^{i (c+d x)}\right] + \sqrt{2} A \left(\text{Log}\left[1 - e^{i (c+d x)}\right] - \text{Log}\left[1 + e^{i (c+d x)}\right] + \text{Log}\left[1 - e^{i (c+d x)} + \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}}\right] - \text{Log}\left[1 + e^{i (c+d x)} + \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}}\right]\right)\right) (a + i a \text{Tan}[c + d x])^{5/2} (A + B \text{Tan}[c + d x])\right) \Big/ \left(\sqrt{2} d \sqrt{\frac{e^{i (c+d x)}}{1 + e^{2 i (c+d x)}}} \sqrt{1 + e^{2 i (c+d x)}} \text{Sec}[c + d x]^{7/2} (\text{Cos}[d x] + i \text{Sin}[d x])^{5/2} (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left(\text{Cos}[c + d x]^3 \left((3 A - 8 i B) \left(-\frac{2}{3} \text{Cos}[2 c] + \frac{2}{3} i \text{Sin}[2 c]\right) + \text{Sec}[c + d x] \left(-\frac{2}{3} i B \text{Cos}[3 c + d x] - \frac{2}{3} B \text{Sin}[3 c + d x]\right)\right) (a + i a \text{Tan}[c + d x])^{5/2} (A + B \text{Tan}[c + d x])\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right)$$

- **Problem 86: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c + d x]^2 (a + i a \text{Tan}[c + d x])^{5/2} (A + B \text{Tan}[c + d x]) \, dx$$

Optimal (type 3, 158 leaves, 8 steps):

$$-\frac{a^{5/2} (5 i A + 2 B) \text{ArcTanh}\left[\frac{\sqrt{a + i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d} + \frac{4 \sqrt{2} a^{5/2} (i A + B) \text{ArcTanh}\left[\frac{\sqrt{a + i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d} + \frac{a^2 (i A - 2 B) \sqrt{a + i a \text{Tan}[c + d x]}}{d} - \frac{a A \text{Cot}[c + d x] (a + i a \text{Tan}[c + d x])^{3/2}}{d}$$

Result (type 3, 512 leaves):

$$\left(e^{-2 i c} \sqrt{e^{i d x}} \left(32 (i A + B) \text{ArcSinh}\left[e^{i (c+d x)}\right] + \sqrt{2} (5 i A + 2 B) \left(\text{Log}\left[\left(-1 + e^{i (c+d x)}\right)^2\right] - \text{Log}\left[\left(1 + e^{i (c+d x)}\right)^2\right] + \text{Log}\left[3 + 3 e^{2 i (c+d x)} + 2 \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}} - 2 e^{i (c+d x)} \left(1 + \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}}\right)\right] - \text{Log}\left[3 + 3 e^{2 i (c+d x)} + 2 \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}} + 2 e^{i (c+d x)} \left(1 + \sqrt{2} \sqrt{1 + e^{2 i (c+d x)}}\right)\right]\right)\right) (a + i a \text{Tan}[c + d x])^{5/2} (A + B \text{Tan}[c + d x])\right) \Big/ \left(4 \sqrt{2} d \sqrt{\frac{e^{i (c+d x)}}{1 + e^{2 i (c+d x)}}} \sqrt{1 + e^{2 i (c+d x)}} \text{Sec}[c + d x]^{7/2} (\text{Cos}[d x] + i \text{Sin}[d x])^{5/2} (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right) + \left(\text{Cos}[c + d x]^3 (\text{Csc}[c] (A \text{Cos}[c] + 2 B \text{Sin}[c]) (-\text{Cos}[2 c] + i \text{Sin}[2 c]) + A \text{Csc}[c] \text{Csc}[c + d x] (\text{Cos}[2 c] - i \text{Sin}[2 c]) \text{Sin}[d x]) (a + i a \text{Tan}[c + d x])^{5/2} (A + B \text{Tan}[c + d x])\right) \Big/ \left(d (\text{Cos}[d x] + i \text{Sin}[d x])^2 (A \text{Cos}[c + d x] + B \text{Sin}[c + d x])\right)$$

Problem 87: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^3 (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 173 leaves, 8 steps):

$$\frac{a^{5/2} (23 A-20 i B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 d}-\frac{4 \sqrt{2} a^{5/2} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}-\frac{a^2 (7 i A+4 B) \text{Cot}[c+d x] \sqrt{a+i a \text{Tan}[c+d x]}}{4 d}-\frac{a A \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^{3/2}}{2 d}$$

Result (type 3, 577 leaves):

$$-\left(\left(e^{-2 i c} \sqrt{e^{i d x}} \left(128 (A-i B) \text{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2} (23 A-20 i B) \left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2 \sqrt{2} \sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)} \left(1+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right)\right]-\text{Log}\left[3+3 e^{2 i (c+d x)}+2 \sqrt{2} \sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)} \left(1+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right) (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(16 \sqrt{2} d \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{1+e^{2 i (c+d x)}} \text{Sec}[c+d x]^{7/2} (\text{Cos}[d x]+i \text{Sin}[d x])^{5/2} (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)\right)+$$
$$\left(\text{Cos}[c+d x]^3 \left(-i \text{Csc}[c] (9 A \text{Cos}[c]-4 i B \text{Cos}[c]+2 i A \text{Sin}[c]) \left(\frac{1}{4} \text{Cos}[2 c]-\frac{1}{4} i \text{Sin}[2 c]\right)+\text{Csc}[c+d x]^2 \left(-\frac{1}{2} A \text{Cos}[2 c]+\frac{1}{2} i A \text{Sin}[2 c]\right)+\text{Csc}[c] \text{Csc}[c+d x] \left(\frac{1}{4} \text{Cos}[2 c]-\frac{1}{4} i \text{Sin}[2 c]\right) (9 i A \text{Sin}[d x]+4 B \text{Sin}[d x])\right) (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

Problem 88: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4 (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 217 leaves, 9 steps):

$$\frac{a^{5/2} (45 i A+46 B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{8 d}-\frac{4 \sqrt{2} a^{5/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{d}+\frac{a^2 (19 A-18 i B) \text{Cot}[c+d x] \sqrt{a+i a \text{Tan}[c+d x]}}{8 d}-\frac{a^2 (3 i A+2 B) \text{Cot}[c+d x]^2 \sqrt{a+i a \text{Tan}[c+d x]}}{4 d}-\frac{a A \text{Cot}[c+d x]^3 (a+i a \text{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 634 leaves) :

$$-\left(\left(i\, e^{-2 i c}\sqrt{e^{i d x}}\left(256\,(A-i B)\,\text{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2}\,(45 A-46 i B)\right.\right.\right.$$
$$\left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]-\right.$$
$$\left.\left.\left.\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right)(a+i a\,\text{Tan}[c+d x])^{5/2}(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left.\left(32\sqrt{2}\, d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\,\text{Sec}[c+d x]^{7/2}(\text{Cos}[d x]+i\,\text{Sin}[d x])^{5/2}(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)\right)+$$
$$\frac{1}{d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])}\,\text{Cos}[c+d x]^3$$
$$\left(\text{Csc}[c]\,(65 A\,\text{Cos}[c]-54 i B\,\text{Cos}[c]+26 i A\,\text{Sin}[c]+12 B\,\text{Sin}[c])\left(\frac{1}{24}\text{Cos}[2 c]-\frac{1}{24} i\,\text{Sin}[2 c]\right)+\right.$$
$$\text{Csc}[c]\,\text{Csc}[c+d x]^2\,(-4 A\,\text{Cos}[c]-13 i A\,\text{Sin}[c]-6 B\,\text{Sin}[c])\left(\frac{1}{12}\text{Cos}[2 c]-\frac{1}{12} i\,\text{Sin}[2 c]\right)+$$
$$A\,\text{Csc}[c]\,\text{Csc}[c+d x]^3\left(\frac{1}{3}\text{Cos}[2 c]-\frac{1}{3} i\,\text{Sin}[2 c]\right)\text{Sin}[d x]+$$
$$\left.\text{Csc}[c]\,\text{Csc}[c+d x]\left(\frac{1}{24}\text{Cos}[2 c]-\frac{1}{24} i\,\text{Sin}[2 c]\right)(-65 A\,\text{Sin}[d x]+54 i B\,\text{Sin}[d x])\right)(a+i a\,\text{Tan}[c+d x])^{5/2}(A+B\,\text{Tan}[c+d x])$$

- **Problem 89: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^5\,(a+i a\,\text{Tan}[c+d x])^{5/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 261 leaves, 10 steps) :

$$-\frac{3 a^{5/2}\,(121 A-120 i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{64 d}+\frac{4\sqrt{2}\, a^{5/2}\,(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\right]}{d}+$$
$$\frac{a^2\,(149 i A+152 B)\,\text{Cot}[c+d x]\sqrt{a+i a\,\text{Tan}[c+d x]}}{64 d}+\frac{a^2\,(107 A-104 i B)\,\text{Cot}[c+d x]^2\sqrt{a+i a\,\text{Tan}[c+d x]}}{96 d}-$$
$$\frac{a^2\,(11 i A+8 B)\,\text{Cot}[c+d x]^3\sqrt{a+i a\,\text{Tan}[c+d x]}}{24 d}-\frac{a A\,\text{Cot}[c+d x]^4\,(a+i a\,\text{Tan}[c+d x])^{3/2}}{4 d}$$

Result (type 3, 698 leaves) :

$$\left(e^{-2 i c}\sqrt{e^{i d x}}\left(2048 (A-i B) \text{ArcSinh}\left[e^{i (c+d x)}\right]+3\sqrt{2} (121 A-120 i B)\left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]-\text{Log}\left[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\left(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right)(a+i a \text{Tan}[c+d x])^{5/2}(A+B \text{Tan}[c+d x])\right)\Big/$$

$$\left(256\sqrt{2}\, d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\,\text{Sec}[c+d x]^{7/2}(\text{Cos}[d x]+i \text{Sin}[d x])^{5/2}(A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$

$$\frac{1}{d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}$$

$$\text{Cos}[c+d x]^3\left(\text{Csc}[c] (583 i A \text{Cos}[c]+520 B \text{Cos}[c]-262 A \text{Sin}[c]+208 i B \text{Sin}[c])\left(\frac{1}{192}\text{Cos}[2 c]-\frac{1}{192} i \text{Sin}[2 c]\right)+\right.$$

$$\text{Csc}[c+d x]^4\left(-\frac{1}{4} A \text{Cos}[2 c]+\frac{1}{4} i A \text{Sin}[2 c]\right)+$$

$$\text{Csc}[c] \text{Csc}[c+d x]^2 (87 i A+72 B-223 i A \text{Cos}[2 c]-136 B \text{Cos}[2 c]+223 A \text{Sin}[2 c]-136 i B \text{Sin}[2 c])\left(\frac{1}{192}\text{Cos}[3 c]-\frac{1}{192} i \text{Sin}[3 c]\right)+$$

$$\text{Csc}[c] \text{Csc}[c+d x]\left(\frac{1}{192}\text{Cos}[2 c]-\frac{1}{192} i \text{Sin}[2 c]\right)(-583 i A \text{Sin}[d x]-520 B \text{Sin}[d x])+$$

$$\left.\text{Csc}[c] \text{Csc}[c+d x]^3\left(\frac{1}{24}\text{Cos}[2 c]-\frac{1}{24} i \text{Sin}[2 c]\right)(17 i A \text{Sin}[d x]+8 B \text{Sin}[d x])\right)(a+i a \text{Tan}[c+d x])^{5/2}(A+B \text{Tan}[c+d x])$$

- **Problem 94: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x] (A+B \text{Tan}[c+d x])}{\sqrt{a+i a \text{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 114 leaves, 7 steps):

$$-\frac{2 A \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\, d}+\frac{(A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\right]}{\sqrt{2}\sqrt{a}\, d}+\frac{A+i B}{d\sqrt{a+i a \text{Tan}[c+d x]}}$$

Result (type 3, 350 leaves):

$$\left(\left(A\sqrt{1+e^{2 i (c+d x)}}+i B\sqrt{1+e^{2 i (c+d x)}}+(A-i B) e^{i (c+d x)} \text{ArcSinh}\left[e^{i (c+d x)}\right]+\sqrt{2} A e^{i (c+d x)} \text{Log}\left[1-e^{i (c+d x)}\right]-\sqrt{2} A e^{i (c+d x)} \text{Log}\left[1+e^{i (c+d x)}\right]+\sqrt{2} A e^{i (c+d x)} \text{Log}\left[1-e^{i (c+d x)}+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right]-\sqrt{2} A e^{i (c+d x)} \text{Log}\left[1+e^{i (c+d x)}+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Big/\left(2 d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}\right)$$

Problem 95: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \text{Tan}[c+d x])}{\sqrt{a+i a \text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 167 leaves, 8 steps):

$$\frac{(i A-2 B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} d}+\frac{(i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{\sqrt{2} \sqrt{a} d}+\frac{(A+i B) \text{Cot}[c+d x]}{d \sqrt{a+i a \text{Tan}[c+d x]}}-\frac{(2 A+i B) \text{Cot}[c+d x] \sqrt{a+i a \text{Tan}[c+d x]}}{a d}$$

Result (type 3, 387 leaves):

$$\left((B+A \text{Cot}[c+d x]) \left(\left(\left(-1+e^{2 i (c+d x)}\right) \left(4 (A-i B) \text{ArcSinh}\left[e^{i (c+d x)}\right]-\sqrt{2} (A+2 i B)\right.\right.\right.\right.$$
$$\left(\text{Log}\left[\left(-1+e^{i (c+d x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i (c+d x)}\right)^2\right]+\text{Log}\left[3+3 e^{2 i (c+d x)}+2 \sqrt{2} \sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)} \left(1+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right)\right]-\right.$$
$$\left.\left.\left.\text{Log}\left[3+3 e^{2 i (c+d x)}+2 \sqrt{2} \sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)} \left(1+\sqrt{2} \sqrt{1+e^{2 i (c+d x)}}\right)\right]\right)\right) \sqrt{\text{Sec}[c+d x]}\right) \Big/$$
$$\left.\left.\left(\sqrt{2} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{1+e^{2 i (c+d x)}}\right)-8 (A \text{Cos}[c+d x]+(2 i A-B) \text{Sin}[c+d x])\right)\right) \Big/ \left(8 d (A \text{Cos}[c+d x]+B\right.$$
$$\left.\text{Sin}[c+d x]) \sqrt{a+i a \text{Tan}[c+d x]}\right)$$

Problem 103: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 268 leaves, 10 steps):

$$\frac{(23 A+12 i B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{3/2} d}-\frac{(A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+i a \text{Tan}[c+d x]}}{\sqrt{2} \sqrt{a}}\right]}{2 \sqrt{2} a^{3/2} d}+\frac{(A+i B) \text{Cot}[c+d x]^2}{3 d (a+i a \text{Tan}[c+d x])^{3/2}}+$$
$$\frac{(17 A+11 i B) \text{Cot}[c+d x]^2}{6 a d \sqrt{a+i a \text{Tan}[c+d x]}}+\frac{7 (3 i A-2 B) \text{Cot}[c+d x] \sqrt{a+i a \text{Tan}[c+d x]}}{4 a^2 d}-\frac{(22 A+13 i B) \text{Cot}[c+d x]^2 \sqrt{a+i a \text{Tan}[c+d x]}}{6 a^2 d}$$

Result (type 3, 755 leaves):

$$-\Bigg(\Bigg(e^{2\,i\,c}\,\sqrt{e^{i\,d\,x}}\,\Bigg(8\,(A-i\,B)\,\text{ArcSinh}\left[e^{i\,(c+d\,x)}\right]+\sqrt{2}\,(23\,A+12\,i\,B)\,\Bigg(\text{Log}\left[\left(-1+e^{i\,(c+d\,x)}\right)^2\right]-\text{Log}\left[\left(1+e^{i\,(c+d\,x)}\right)^2\right]+\text{Log}\Big[3+3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}-2\,e^{i\,(c+d\,x)}\left(1+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right)\Big]-\text{Log}\Big[3+3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}+2\,e^{i\,(c+d\,x)}\left(1+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right)\Big]\Bigg)\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\Bigg(16\,\sqrt{2}\,d\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\Bigg)\Bigg)+$$

$$\frac{1}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}\,\text{Sec}[c+d\,x]\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,\Bigg(-\frac{1}{12}\,(23\,A+17\,i\,B)\,\text{Cos}[2\,d\,x]+(A+i\,B)\,\text{Cos}[4\,d\,x]\left(-\frac{1}{12}\,\text{Cos}[2\,c]+\frac{1}{12}\,i\,\text{Sin}[2\,c]\right)+\text{Csc}[c]\,(21\,i\,A\,\text{Cos}[c]-12\,B\,\text{Cos}[c]-16\,A\,\text{Sin}[c]-16\,i\,B\,\text{Sin}[c])\left(\frac{1}{12}\,\text{Cos}[2\,c]+\frac{1}{12}\,i\,\text{Sin}[2\,c]\right)+\text{Csc}[c+d\,x]^2\left(-\frac{1}{2}\,A\,\text{Cos}[2\,c]-\frac{1}{2}\,i\,A\,\text{Sin}[2\,c]\right)+\frac{1}{12}\,i\,(23\,A+17\,i\,B)\,\text{Sin}[2\,d\,x]+(A+i\,B)\left(\frac{1}{12}\,i\,\text{Cos}[2\,c]+\frac{1}{12}\,\text{Sin}[2\,c]\right)\text{Sin}[4\,d\,x]+\frac{1}{4}\,\text{Csc}[c]\,\text{Csc}[c+d\,x]\,\Bigg(\frac{7}{2}\,A\,\text{Cos}[2\,c-d\,x]+2\,i\,B\,\text{Cos}[2\,c-d\,x]-\frac{7}{2}\,A\,\text{Cos}[2\,c+d\,x]-2\,i\,B\,\text{Cos}[2\,c+d\,x]+\frac{7}{2}\,i\,A\,\text{Sin}[2\,c-d\,x]-2\,B\,\text{Sin}[2\,c-d\,x]-\frac{7}{2}\,i\,A\,\text{Sin}[2\,c+d\,x]+2\,B\,\text{Sin}[2\,c+d\,x]\Bigg)\Bigg)\,(A+B\,\text{Tan}[c+d\,x])$$

Problem 109: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 192 leaves, 9 steps) :

$$-\frac{2\,A\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,d}+\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{4\,\sqrt{2}\,a^{5/2}\,d}+\frac{A+i\,B}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}+\frac{3\,A+i\,B}{6\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}+\frac{7\,A+i\,B}{4\,a^2\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 580 leaves) :

$$\left(e^{3\,i\,c}\,\sqrt{e^{i\,d\,x}}\,\left((A-i\,B)\,\text{ArcSinh}\left[e^{i\,(c+d\,x)}\right]+4\,\sqrt{2}\,A\,\left(\text{Log}\left[1-e^{i\,(c+d\,x)}\right]-\text{Log}\left[1+e^{i\,(c+d\,x)}\right]+\text{Log}\left[1-e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]-\text{Log}\left[1+e^{i\,(c+d\,x)}+\sqrt{2}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\right]\right)\right)\,\text{Sec}[c+d\,x]^{3/2}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(4\,\sqrt{2}\,d\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\sqrt{1+e^{2\,i\,(c+d\,x)}}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,\text{Sec}[c+d\,x]^2\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\left((12\,A+7\,i\,B)\,\text{Cos}[4\,d\,x]\left(\frac{\text{Cos}[c]}{60}-\frac{1}{60}\,i\,\text{Sin}[c]\right)+(72\,A+17\,i\,B)\,\text{Cos}[2\,d\,x]\left(\frac{\text{Cos}[c]}{60}+\frac{1}{60}\,i\,\text{Sin}[c]\right)+(123\,A+23\,i\,B)\left(\frac{1}{120}\,\text{Cos}[3\,c]+\frac{1}{120}\,i\,\text{Sin}[3\,c]\right)+(A+i\,B)\,\text{Cos}[6\,d\,x]\left(\frac{1}{40}\,\text{Cos}[3\,c]-\frac{1}{40}\,i\,\text{Sin}[3\,c]\right)+(-72\,i\,A+17\,B)\left(\frac{\text{Cos}[c]}{60}+\frac{1}{60}\,i\,\text{Sin}[c]\right)\,\text{Sin}[2\,d\,x]+(-12\,i\,A+7\,B)\left(\frac{\text{Cos}[c]}{60}-\frac{1}{60}\,i\,\text{Sin}[c]\right)\,\text{Sin}[4\,d\,x]+(-i\,A+B)\left(\frac{1}{40}\,\text{Cos}[3\,c]-\frac{1}{40}\,i\,\text{Sin}[3\,c]\right)\,\text{Sin}[6\,d\,x]\right)\,(A+B\,\text{Tan}[c+d\,x])$$

Problem 110: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]^2\,(A+B\,\text{Tan}[c+d\,x])}{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 259 leaves, 10 steps) :

$$\frac{(5\,i\,A-2\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,d}+\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{4\,\sqrt{2}\,a^{5/2}\,d}+\frac{(A+i\,B)\,\text{Cot}[c+d\,x]}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}+\frac{(19\,A+9\,i\,B)\,\text{Cot}[c+d\,x]}{30\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}+\frac{(41\,A+15\,i\,B)\,\text{Cot}[c+d\,x]}{12\,a^2\,d\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{7\,(3\,A+i\,B)\,\text{Cot}[c+d\,x]\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{4\,a^3\,d}$$

Result (type 3, 748 leaves) :

$$\Big(e^{3 i c}\sqrt{e^{i d x}}\Big((i A+B)\,\text{ArcSinh}\big[e^{i (c+d x)}\big]+\sqrt{2}\,(-5 i A+2 B)\Big(\text{Log}\big[\big(-1+e^{i (c+d x)}\big)^2\big]-\text{Log}\big[\big(1+e^{i (c+d x)}\big)^2\big]+\text{Log}\Big[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}-2 e^{i (c+d x)}\Big(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\Big)\Big]-\text{Log}\Big[3+3 e^{2 i (c+d x)}+2\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}+2 e^{i (c+d x)}\Big(1+\sqrt{2}\sqrt{1+e^{2 i (c+d x)}}\Big)\Big]\Big)\Big)$$

$$\text{Sec}[c+d x]^{3/2}\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^{5/2}\,(A+B\,\text{Tan}[c+d x])\Big)\Big/\Big(4\sqrt{2}\,d\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\sqrt{1+e^{2 i (c+d x)}}$$

$$(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^{5/2}\Big)+$$

$$\frac{1}{d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+i a\,\text{Tan}[c+d x])^{5/2}}\,\text{Sec}[c+d x]^2\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^3$$

$$\Big((-17 i A+12 B)\,\text{Cos}[4 d x]\Big(\frac{\text{Cos}[c]}{60}-\frac{1}{60} i\,\text{Sin}[c]\Big)+(-157 i A+72 B)\,\text{Cos}[2 d x]\Big(\frac{\text{Cos}[c]}{60}+\frac{1}{60} i\,\text{Sin}[c]\Big)+$$

$$\text{Csc}[c]\,(120 A\,\text{Cos}[c]+283 i A\,\text{Sin}[c]-123 B\,\text{Sin}[c])\Big(-\frac{1}{120}\text{Cos}[3 c]-\frac{1}{120} i\,\text{Sin}[3 c]\Big)+$$

$$(-i A+B)\,\text{Cos}[6 d x]\Big(\frac{1}{40}\text{Cos}[3 c]-\frac{1}{40} i\,\text{Sin}[3 c]\Big)+(157 A+72 i B)\Big(-\frac{\text{Cos}[c]}{60}-\frac{1}{60} i\,\text{Sin}[c]\Big)\text{Sin}[2 d x]+$$

$$(17 A+12 i B)\Big(-\frac{\text{Cos}[c]}{60}+\frac{1}{60} i\,\text{Sin}[c]\Big)\text{Sin}[4 d x]+(A+i B)\Big(-\frac{1}{40}\text{Cos}[3 c]+\frac{1}{40} i\,\text{Sin}[3 c]\Big)\text{Sin}[6 d x]+$$

$$\text{Csc}[c]\,\text{Csc}[c+d x]\Big(\frac{1}{2} i A\,\text{Cos}[3 c-d x]-\frac{1}{2} i A\,\text{Cos}[3 c+d x]-\frac{1}{2} A\,\text{Sin}[3 c-d x]+\frac{1}{2} A\,\text{Sin}[3 c+d x]\Big)\Big)\,(A+B\,\text{Tan}[c+d x])$$

- **Problem 111: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^3\,(A+B\,\text{Tan}[c+d x])}{(a+i a\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 312 leaves, 11 steps):

$$\frac{(43 A+20 i B)\,\text{ArcTanh}\Big[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{a}}\Big]}{4 a^{5/2} d}-\frac{(A-i B)\,\text{ArcTanh}\Big[\frac{\sqrt{a+i a\,\text{Tan}[c+d x]}}{\sqrt{2}\sqrt{a}}\Big]}{4\sqrt{2}\,a^{5/2} d}+\frac{(A+i B)\,\text{Cot}[c+d x]^2}{5 d\,(a+i a\,\text{Tan}[c+d x])^{5/2}}+\frac{(23 A+13 i B)\,\text{Cot}[c+d x]^2}{30 a d\,(a+i a\,\text{Tan}[c+d x])^{3/2}}+$$

$$\frac{(337 A+167 i B)\,\text{Cot}[c+d x]^2}{60 a^2 d\sqrt{a+i a\,\text{Tan}[c+d x]}}+\frac{21\,(2 i A-B)\,\text{Cot}[c+d x]\sqrt{a+i a\,\text{Tan}[c+d x]}}{4 a^3 d}-\frac{(85 A+41 i B)\,\text{Cot}[c+d x]^2\sqrt{a+i a\,\text{Tan}[c+d x]}}{12 a^3 d}$$

Result (type 3, 839 leaves):

$$-\Bigg(\Bigg(e^{3 i c}\sqrt{e^{i d x}}\Bigg(4(A-iB)\text{ArcSinh}\left[e^{i(c+dx)}\right]+\sqrt{2}\,(43A+20iB)\Big(\text{Log}\left[\left(-1+e^{i(c+dx)}\right)^2\right]-\text{Log}\left[\left(1+e^{i(c+dx)}\right)^2\right]+\text{Log}\Big[3+3e^{2i(c+dx)}+2\sqrt{2}\sqrt{1+e^{2i(c+dx)}}-2e^{i(c+dx)}\left(1+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right)\Big]-\text{Log}\Big[3+3e^{2i(c+dx)}+2\sqrt{2}\sqrt{1+e^{2i(c+dx)}}+2e^{i(c+dx)}\left(1+\sqrt{2}\sqrt{1+e^{2i(c+dx)}}\right)\Big]\Big)\Bigg)\text{Sec}[c+dx]^{3/2}(\text{Cos}[dx]+i\,\text{Sin}[dx])^{5/2}(A+B\,\text{Tan}[c+dx])\Bigg)\Bigg/\Bigg(16\sqrt{2}\,d\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\sqrt{1+e^{2i(c+dx)}}\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])(a+i\,a\,\text{Tan}[c+dx])^{5/2}\Bigg)\Bigg)+$$

$$\frac{1}{d\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])(a+i\,a\,\text{Tan}[c+dx])^{5/2}}\text{Sec}[c+dx]^2(\text{Cos}[dx]+i\,\text{Sin}[dx])^3\Bigg((272A+157iB)\text{Cos}[2dx]\left(-\frac{\text{Cos}[c]}{60}-\frac{1}{60}i\,\text{Sin}[c]\right)+(22A+17iB)\text{Cos}[4dx]\left(-\frac{\text{Cos}[c]}{60}+\frac{1}{60}i\,\text{Sin}[c]\right)+\text{Csc}[c](330iA\,\text{Cos}[c]-120B\,\text{Cos}[c]-443A\,\text{Sin}[c]-283iB\,\text{Sin}[c])\left(\frac{1}{120}\text{Cos}[3c]+\frac{1}{120}i\,\text{Sin}[3c]\right)+(A+iB)\text{Cos}[6dx]\left(-\frac{1}{40}\text{Cos}[3c]+\frac{1}{40}i\,\text{Sin}[3c]\right)+\text{Csc}[c+dx]^2\left(-\frac{1}{2}A\,\text{Cos}[3c]-\frac{1}{2}iA\,\text{Sin}[3c]\right)+(272A+157iB)\left(\frac{1}{60}i\,\text{Cos}[c]-\frac{\text{Sin}[c]}{60}\right)\text{Sin}[2dx]+(22A+17iB)\left(\frac{1}{60}i\,\text{Cos}[c]+\frac{\text{Sin}[c]}{60}\right)\text{Sin}[4dx]+(A+iB)\left(\frac{1}{40}i\,\text{Cos}[3c]+\frac{1}{40}\text{Sin}[3c]\right)\text{Sin}[6dx]+\frac{1}{4}\text{Csc}[c]\,\text{Csc}[c+dx]\Big(\frac{11}{2}A\,\text{Cos}[3c-dx]+2iB\,\text{Cos}[3c-dx]-\frac{11}{2}A\,\text{Cos}[3c+dx]-2iB\,\text{Cos}[3c+dx]+\frac{11}{2}iA\,\text{Sin}[3c-dx]-2B\,\text{Sin}[3c-dx]-\frac{11}{2}iA\,\text{Sin}[3c+dx]+2B\,\text{Sin}[3c+dx]\Big)\Bigg)(A+B\,\text{Tan}[c+dx])$$

- **Problem 112: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+dx]^{5/2}(a+i\,a\,\text{Tan}[c+dx])(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$-\frac{2\,(-1)^{1/4}\,a\,(\mathrm{i}\,A+B)\,\mathrm{ArcTan}\left[(-1)^{3/4}\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{d}-\frac{2\,a\,(\mathrm{i}\,A+B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+\frac{2\,a\,(A-\mathrm{i}\,B)\,\mathrm{Tan}[c+d\,x]^{3/2}}{3\,d}+\frac{2\,a\,(\mathrm{i}\,A+B)\,\mathrm{Tan}[c+d\,x]^{5/2}}{5\,d}+\frac{2\,\mathrm{i}\,a\,B\,\mathrm{Tan}[c+d\,x]^{7/2}}{7\,d}$$

Result (type 3, 366 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\mathrm{Cos}[c+d\,x]^2\left(\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^2\left(\frac{2\,\mathrm{Cos}[c]}{35}-\frac{2}{35}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(7\,\mathrm{i}\,A\,\mathrm{Cos}[c]+7\,B\,\mathrm{Cos}[c]+5\,\mathrm{i}\,B\,\mathrm{Sin}[c])+\mathrm{Sec}[c]\left(-\frac{2}{105}\,\mathrm{i}\,\mathrm{Cos}[c]-\frac{2\,\mathrm{Sin}[c]}{105}\right)\right.$$
$$(126\,A\,\mathrm{Cos}[c]-126\,\mathrm{i}\,B\,\mathrm{Cos}[c]+35\,\mathrm{i}\,A\,\mathrm{Sin}[c]+50\,B\,\mathrm{Sin}[c])+\mathrm{i}\,B\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^3\left(\frac{2\,\mathrm{Cos}[c]}{7}-\frac{2}{7}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\mathrm{Sin}[d\,x]+$$
$$\left.\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\left(\frac{2\,\mathrm{Cos}[c]}{21}-\frac{2}{21}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(7\,A\,\mathrm{Sin}[d\,x]-10\,\mathrm{i}\,B\,\mathrm{Sin}[d\,x])\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])+$$
$$\left((A-\mathrm{i}\,B)\,\mathrm{ArcCosh}\left[e^{2\,\mathrm{i}\,(c+d\,x)}\right]\mathrm{Cos}[c+d\,x]^2\,(\mathrm{i}\,\mathrm{Cos}[c]+\mathrm{Sin}[c])\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,\sqrt{\mathrm{i}\,\mathrm{Tan}[c+d\,x]}\right)$$

Problem 118: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 103 leaves, 5 steps):

$$\frac{2\,(-1)^{1/4}\,a\,(\mathrm{i}\,A+B)\,\mathrm{ArcTan}\left[(-1)^{3/4}\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{d}-\frac{2\,a\,A}{5\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}-\frac{2\,a\,(\mathrm{i}\,A+B)}{3\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,a\,(A-\mathrm{i}\,B)}{d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 363 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\mathrm{Cos}[c+d\,x]^2\left(\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^2\left(-\frac{2\,\mathrm{Cos}[c]}{15}+\frac{2}{15}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(3\,A\,\mathrm{Cos}[c]+5\,\mathrm{i}\,A\,\mathrm{Sin}[c]+5\,B\,\mathrm{Sin}[c])+\mathrm{Csc}[c]\left(\frac{2\,\mathrm{Cos}[c]}{15}-\frac{2}{15}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\right.$$
$$(18\,A\,\mathrm{Cos}[c]-15\,\mathrm{i}\,B\,\mathrm{Cos}[c]+5\,\mathrm{i}\,A\,\mathrm{Sin}[c]+5\,B\,\mathrm{Sin}[c])+A\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^3\left(\frac{2\,\mathrm{Cos}[c]}{5}-\frac{2}{5}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\mathrm{Sin}[d\,x]+$$
$$\left.\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\left(-\frac{2\,\mathrm{Cos}[c]}{5}+\frac{2}{5}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(6\,A\,\mathrm{Sin}[d\,x]-5\,\mathrm{i}\,B\,\mathrm{Sin}[d\,x])\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])+$$
$$\left((A-\mathrm{i}\,B)\,\mathrm{ArcCosh}\left[e^{2\,\mathrm{i}\,(c+d\,x)}\right]\mathrm{Cos}[c+d\,x]^2\,(-\mathrm{i}\,\mathrm{Cos}[c]-\mathrm{Sin}[c])\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,\sqrt{\mathrm{i}\,\mathrm{Tan}[c+d\,x]}\right)$$

Problem 119: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^{5/2} (a+i a \text{Tan}[c+d x])^2 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 183 leaves, 7 steps):

$$-\frac{4 (-1)^{1/4} a^2 (i A+B) \text{ArcTan}\left[(-1)^{3/4} \sqrt{\text{Tan}[c+d x]}\right]}{d}-\frac{4 a^2 (i A+B) \sqrt{\text{Tan}[c+d x]}}{d}+\frac{4 a^2 (A-i B) \text{Tan}[c+d x]^{3/2}}{3 d}+\frac{4 a^2 (i A+B) \text{Tan}[c+d x]^{5/2}}{5 d}-\frac{2 a^2 (9 A-11 i B) \text{Tan}[c+d x]^{7/2}}{63 d}+\frac{2 i B \text{Tan}[c+d x]^{7/2} \left(a^2+i a^2 \text{Tan}[c+d x]\right)}{9 d}$$

Result (type 3, 434 leaves):

$$\frac{1}{d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])} \text{Cos}[c+d x]^3 \Bigg(\text{Sec}[c] (756 A \text{Cos}[c]-791 i B \text{Cos}[c]+255 i A \text{Sin}[c]+300 B \text{Sin}[c]) \left(-\frac{2}{315} i \text{Cos}[2 c]-\frac{2}{315} \text{Sin}[2 c]\right)+$$
$$\text{Sec}[c] \text{Sec}[c+d x]^2 (126 i A \text{Cos}[c]+196 B \text{Cos}[c]-45 A \text{Sin}[c]+90 i B \text{Sin}[c]) \left(\frac{2}{315} \text{Cos}[2 c]-\frac{2}{315} i \text{Sin}[2 c]\right)+$$
$$\text{Sec}[c+d x]^4 \left(-\frac{2}{9} B \text{Cos}[2 c]+\frac{2}{9} i B \text{Sin}[2 c]\right)+\text{Sec}[c] \text{Sec}[c+d x]^3 \left(-\frac{2}{7} \text{Cos}[2 c]+\frac{2}{7} i \text{Sin}[2 c]\right) (A \text{Sin}[d x]-2 i B \text{Sin}[d x])+\text{Sec}[c]$$
$$\text{Sec}[c+d x] \left(\frac{2}{21} \text{Cos}[2 c]-\frac{2}{21} i \text{Sin}[2 c]\right) (17 A \text{Sin}[d x]-20 i B \text{Sin}[d x])\Bigg) \sqrt{\text{Tan}[c+d x]} (a+i a \text{Tan}[c+d x])^2 (A+B \text{Tan}[c+d x])+$$
$$\left(2 (A-i B) \text{ArcCosh}\left[e^{2 i (c+d x)}\right] \text{Cos}[c+d x]^3 (i \text{Cos}[2 c]+\text{Sin}[2 c]) \sqrt{\text{Tan}[c+d x]} (a+i a \text{Tan}[c+d x])^2 (A+B \text{Tan}[c+d x])\right) \Big/$$
$$\left(d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) \sqrt{i \text{Tan}[c+d x]}\right)$$

Problem 120: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^2 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 156 leaves, 6 steps):

$$\frac{4 (-1)^{1/4} a^2 (A-i B) \text{ArcTan}\left[(-1)^{3/4} \sqrt{\text{Tan}[c+d x]}\right]}{d}+\frac{4 a^2 (A-i B) \sqrt{\text{Tan}[c+d x]}}{d}+\frac{4 a^2 (i A+B) \text{Tan}[c+d x]^{3/2}}{3 d}-\frac{2 a^2 (7 A-9 i B) \text{Tan}[c+d x]^{5/2}}{35 d}+\frac{2 i B \text{Tan}[c+d x]^{5/2} \left(a^2+i a^2 \text{Tan}[c+d x]\right)}{7 d}$$

Result (type 3, 386 leaves):

$$\Big(2\,(A-i\,B)\,\text{ArcCosh}\big[e^{2\,i\,(c+d\,x)}\big]\,\text{Cos}[c+d\,x]^3\,(i\,\text{Cos}[2\,c]+\text{Sin}[2\,c])\,\sqrt{i\,\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\Big)\Big/\Big(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}\Big)+\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\text{Cos}[c+d\,x]^3\Big(\text{Sec}[c]\,(231\,A\,\text{Cos}[c]-252\,i\,B\,\text{Cos}[c]+70\,i\,A\,\text{Sin}[c]+85\,B\,\text{Sin}[c])\left(\frac{2}{105}\text{Cos}[2\,c]-\frac{2}{105}i\,\text{Sin}[2\,c]\right)+\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\,(7\,A\,\text{Cos}[c]-14\,i\,B\,\text{Cos}[c]+5\,B\,\text{Sin}[c])\left(-\frac{2}{35}\text{Cos}[2\,c]+\frac{2}{35}i\,\text{Sin}[2\,c]\right)+B\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\left(-\frac{2}{7}\text{Cos}[2\,c]+\frac{2}{7}i\,\text{Sin}[2\,c]\right)\text{Sin}[d\,x]+\text{Sec}[c]\,\text{Sec}[c+d\,x]\left(\frac{2}{21}\text{Cos}[2\,c]-\frac{2}{21}i\,\text{Sin}[2\,c]\right)(14\,i\,A\,\text{Sin}[d\,x]+17\,B\,\text{Sin}[d\,x])\Big)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 125: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 127 leaves, 5 steps):

$$\frac{4\,(-1)^{1/4}\,a^2\,(i\,A+B)\,\text{ArcTan}\big[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\big]}{d}-\frac{2\,a^2\,(7\,i\,A+5\,B)}{15\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{4\,a^2\,(A-i\,B)}{d\,\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,A\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)}{5\,d\,\text{Tan}[c+d\,x]^{5/2}}$$

Result (type 3, 386 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\text{Cos}[c+d\,x]^3\Big(\text{Csc}[c]\,(33\,A\,\text{Cos}[c]-30\,i\,B\,\text{Cos}[c]+10\,i\,A\,\text{Sin}[c]+5\,B\,\text{Sin}[c])\left(\frac{2}{15}\text{Cos}[2\,c]-\frac{2}{15}i\,\text{Sin}[2\,c]\right)+\text{Csc}[c]\,\text{Csc}[c+d\,x]^2\,(3\,A\,\text{Cos}[c]+10\,i\,A\,\text{Sin}[c]+5\,B\,\text{Sin}[c])\left(-\frac{2}{15}\text{Cos}[2\,c]+\frac{2}{15}i\,\text{Sin}[2\,c]\right)+A\,\text{Csc}[c]\,\text{Csc}[c+d\,x]^3\left(\frac{2}{5}\text{Cos}[2\,c]-\frac{2}{5}i\,\text{Sin}[2\,c]\right)\text{Sin}[d\,x]+\text{Csc}[c]\,\text{Csc}[c+d\,x]\left(-\frac{2}{5}\text{Cos}[2\,c]+\frac{2}{5}i\,\text{Sin}[2\,c]\right)(11\,A\,\text{Sin}[d\,x]-10\,i\,B\,\text{Sin}[d\,x])\Big)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])+\Big(2\,(A-i\,B)\,\text{ArcCosh}\big[e^{2\,i\,(c+d\,x)}\big]\,\text{Cos}[c+d\,x]^3\,(\text{Cos}[2\,c]-i\,\text{Sin}[2\,c])\,\text{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\Big)\Big/\Big(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(i\,\text{Tan}[c+d\,x])^{3/2}\Big)$$

- **Problem 126: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 154 leaves, 6 steps):

$$-\frac{4\,(-1)^{1/4}\,a^2\,(A-i\,B)\,\text{ArcTan}\big[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\big]}{d}-\frac{2\,a^2\,(9\,i\,A+7\,B)}{35\,d\,\text{Tan}[c+d\,x]^{5/2}}+\frac{4\,a^2\,(A-i\,B)}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{4\,a^2\,(i\,A+B)}{d\,\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,A\,\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)}{7\,d\,\text{Tan}[c+d\,x]^{7/2}}$$

Result (type 3, 434 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$\text{Cos}[c+d\,x]^3\left(\text{Csc}[c]\,\text{Csc}[c+d\,x]^2\,(-42\,\mathbb{i}\,A\,\text{Cos}[c]-21\,B\,\text{Cos}[c]+100\,A\,\text{Sin}[c]-70\,\mathbb{i}\,B\,\text{Sin}[c])\left(\frac{2}{105}\text{Cos}[2\,c]-\frac{2}{105}\,\mathbb{i}\,\text{Sin}[2\,c]\right)+\right.$$
$$\text{Csc}[c]\,(252\,\mathbb{i}\,A\,\text{Cos}[c]+231\,B\,\text{Cos}[c]-85\,A\,\text{Sin}[c]+70\,\mathbb{i}\,B\,\text{Sin}[c])\left(\frac{2}{105}\text{Cos}[2\,c]-\frac{2}{105}\,\mathbb{i}\,\text{Sin}[2\,c]\right)+$$
$$\text{Csc}[c+d\,x]^4\left(-\frac{2}{7}A\,\text{Cos}[2\,c]+\frac{2}{7}\,\mathbb{i}\,A\,\text{Sin}[2\,c]\right)+\text{Csc}[c]\,\text{Csc}[c+d\,x]\left(\frac{2}{5}\text{Cos}[2\,c]-\frac{2}{5}\,\mathbb{i}\,\text{Sin}[2\,c]\right)(-12\,\mathbb{i}\,A\,\text{Sin}[d\,x]-11\,B\,\text{Sin}[d\,x])+$$
$$\left.\text{Csc}[c]\,\text{Csc}[c+d\,x]^3\left(\frac{2}{5}\text{Cos}[2\,c]-\frac{2}{5}\,\mathbb{i}\,\text{Sin}[2\,c]\right)(2\,\mathbb{i}\,A\,\text{Sin}[d\,x]+B\,\text{Sin}[d\,x])\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])+$$
$$\left(2\,(A-\mathbb{i}\,B)\,\text{ArcCosh}\left[e^{2\,\mathbb{i}\,(c+d\,x)}\right]\text{Cos}[c+d\,x]^3\,(\text{Cos}[2\,c]-\mathbb{i}\,\text{Sin}[2\,c])\sqrt{\text{Tan}[c+d\,x]}\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+\mathbb{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{\mathbb{i}\,\text{Tan}[c+d\,x]}\right)$$

Problem 127: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d\,x]^{3/2}\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 198 leaves, 7 steps):

$$\frac{8\,(-1)^{1/4}\,a^3\,(A-\mathbb{i}\,B)\,\text{ArcTan}\left[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\right]}{d}+\frac{8\,a^3\,(A-\mathbb{i}\,B)\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{8\,a^3\,(\mathbb{i}\,A+B)\,\text{Tan}[c+d\,x]^{3/2}}{3\,d}-$$
$$\frac{16\,a^3\,(18\,A-19\,\mathbb{i}\,B)\,\text{Tan}[c+d\,x]^{5/2}}{315\,d}+\frac{2\,\mathbb{i}\,a\,B\,\text{Tan}[c+d\,x]^{5/2}\,(a+\mathbb{i}\,a\,\text{Tan}[c+d\,x])^2}{9\,d}-\frac{2\,(9\,A-13\,\mathbb{i}\,B)\,\text{Tan}[c+d\,x]^{5/2}\left(a^3+\mathbb{i}\,a^3\,\text{Tan}[c+d\,x]\right)}{63\,d}$$

Result (type 3, 435 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$

$$\text{Cos}[c+d\,x]^4\left(\text{Sec}[c]\,(1449\,A\,\text{Cos}[c]-1547\,i\,B\,\text{Cos}[c]+465\,i\,A\,\text{Sin}[c]+555\,B\,\text{Sin}[c])\left(\frac{2}{315}\,\text{Cos}[3\,c]-\frac{2}{315}\,i\,\text{Sin}[3\,c]\right)+\right.$$
$$\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\,(189\,A\,\text{Cos}[c]-322\,i\,B\,\text{Cos}[c]+45\,i\,A\,\text{Sin}[c]+135\,B\,\text{Sin}[c])\left(-\frac{2}{315}\,\text{Cos}[3\,c]+\frac{2}{315}\,i\,\text{Sin}[3\,c]\right)+$$
$$\text{Sec}[c+d\,x]^4\left(-\frac{2}{9}\,i\,B\,\text{Cos}[3\,c]-\frac{2}{9}\,B\,\text{Sin}[3\,c]\right)+\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\left(\frac{2}{7}\,\text{Cos}[3\,c]-\frac{2}{7}\,i\,\text{Sin}[3\,c]\right)(-i\,A\,\text{Sin}[d\,x]-3\,B\,\text{Sin}[d\,x])+\text{Sec}[c]$$
$$\left.\text{Sec}[c+d\,x]\left(\frac{2}{21}\,\text{Cos}[3\,c]-\frac{2}{21}\,i\,\text{Sin}[3\,c]\right)(31\,i\,A\,\text{Sin}[d\,x]+37\,B\,\text{Sin}[d\,x])\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])-$$
$$\left(4\,(A-i\,B)\,\text{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\text{Cos}[c+d\,x]^4\,(\text{Cos}[3\,c]-i\,\text{Sin}[3\,c])\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{i\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 128: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 171 leaves, 6 steps) :

$$\frac{8\,(-1)^{1/4}\,a^3\,(i\,A+B)\,\text{ArcTan}\left[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\right]}{d}+\frac{8\,a^3\,(i\,A+B)\sqrt{\text{Tan}[c+d\,x]}}{d}-\frac{8\,a^3\,(21\,A-23\,i\,B)\,\text{Tan}[c+d\,x]^{3/2}}{105\,d}+$$
$$\frac{2\,i\,a\,B\,\text{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{7\,d}-\frac{2\,(7\,A-11\,i\,B)\,\text{Tan}[c+d\,x]^{3/2}\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{35\,d}$$

Result (type 3, 389 leaves) :

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$

$$\text{Cos}[c+d\,x]^4\left(\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\,(7\,A\,\text{Cos}[c]-21\,i\,B\,\text{Cos}[c]+5\,B\,\text{Sin}[c])\left(-\frac{2}{35}\,i\,\text{Cos}[3\,c]-\frac{2}{35}\,\text{Sin}[3\,c]\right)+\right.$$
$$\text{Sec}[c]\,(441\,i\,A\,\text{Cos}[c]+483\,B\,\text{Cos}[c]-105\,A\,\text{Sin}[c]+155\,i\,B\,\text{Sin}[c])\left(\frac{2}{105}\,\text{Cos}[3\,c]-\frac{2}{105}\,i\,\text{Sin}[3\,c]\right)-$$
$$i\,B\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^3\left(\frac{2}{7}\,\text{Cos}[3\,c]-\frac{2}{7}\,i\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]+\text{Sec}[c]\,\text{Sec}[c+d\,x]\left(-\frac{2}{21}\,\text{Cos}[3\,c]+\frac{2}{21}\,i\,\text{Sin}[3\,c]\right)$$
$$\left.(21\,A\,\text{Sin}[d\,x]-31\,i\,B\,\text{Sin}[d\,x])\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])+$$
$$\left(4\,(A-i\,B)\,\text{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\text{Cos}[c+d\,x]^4\,(\text{Cos}[3\,c]-i\,\text{Sin}[3\,c])\,\text{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(i\,\text{Tan}[c+d\,x])^{3/2}\right)$$

Problem 129: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 146 leaves, 5 steps):

$$-\frac{8 (-1)^{1/4} a^3 (A-i B) \operatorname{ArcTan}\left[(-1)^{3/4} \sqrt{\operatorname{Tan}[c+d x]}\right]}{d}-\frac{16 a^3 (5 A-6 i B) \sqrt{\operatorname{Tan}[c+d x]}}{15 d}+\frac{2 i a B \sqrt{\operatorname{Tan}[c+d x]} (a+i a \operatorname{Tan}[c+d x])^2}{5 d}-\frac{2 (5 A-9 i B) \sqrt{\operatorname{Tan}[c+d x]} \left(a^3+i a^3 \operatorname{Tan}[c+d x]\right)}{15 d}$$

Result (type 3, 333 leaves):

$$\frac{1}{d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])} \operatorname{Cos}[c+d x]^4 \left(\operatorname{Sec}[c] (45 A \operatorname{Cos}[c]-63 i B \operatorname{Cos}[c]+5 i A \operatorname{Sin}[c]+15 B \operatorname{Sin}[c]) \left(-\frac{2}{15} \operatorname{Cos}[3 c]+\frac{2}{15} i \operatorname{Sin}[3 c]\right)+\operatorname{Sec}[c+d x]^2 \left(-\frac{2}{5} i B \operatorname{Cos}[3 c]-\frac{2}{5} B \operatorname{Sin}[3 c]\right)+\operatorname{Sec}[c] \operatorname{Sec}[c+d x] \left(\frac{2}{3} \operatorname{Cos}[3 c]-\frac{2}{3} i \operatorname{Sin}[3 c]\right) (-i A \operatorname{Sin}[d x]-3 B \operatorname{Sin}[d x])\right) \sqrt{\operatorname{Tan}[c+d x]} (a+i a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])+\left(4 (A-i B) \operatorname{ArcCosh}\left[e^{2 i (c+d x)}\right] \operatorname{Cos}[c+d x]^4 (\operatorname{Cos}[3 c]-i \operatorname{Sin}[3 c]) \sqrt{\operatorname{Tan}[c+d x]} (a+i a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])\right) \Big/ \left(d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) \sqrt{i \operatorname{Tan}[c+d x]}\right)$$

Problem 130: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])}{\operatorname{Tan}[c+d x]^{3/2}} \, dx$$

Optimal (type 3, 134 leaves, 5 steps):

$$-\frac{8 (-1)^{1/4} a^3 (i A+B) \operatorname{ArcTan}\left[(-1)^{3/4} \sqrt{\operatorname{Tan}[c+d x]}\right]}{d}-\frac{16 a^3 B \sqrt{\operatorname{Tan}[c+d x]}}{3 d}-\frac{2 a A (a+i a \operatorname{Tan}[c+d x])^2}{d \sqrt{\operatorname{Tan}[c+d x]}}+\frac{2 (3 i A-B) \sqrt{\operatorname{Tan}[c+d x]} \left(a^3+i a^3 \operatorname{Tan}[c+d x]\right)}{3 d}$$

Result (type 3, 341 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\text{Cos}[c+d\,x]^4\left(\text{Csc}[c]\,\text{Sec}[c]\,(3\,A+i\,B+3\,A\,\text{Cos}[2\,c]-i\,B\,\text{Cos}[2\,c]+3\,i\,A\,\text{Sin}[2\,c]+9\,B\,\text{Sin}[2\,c])\left(-\frac{1}{3}\text{Cos}[3\,c]+\frac{1}{3}i\,\text{Sin}[3\,c]\right)-i\,B\,\text{Sec}[c]\,\text{Sec}[c+d\,x]\left(\frac{2}{3}\text{Cos}[3\,c]-\frac{2}{3}i\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]+A\,\text{Csc}[c]\,\text{Csc}[c+d\,x]\,(2\,\text{Cos}[3\,c]-2\,i\,\text{Sin}[3\,c])\,\text{Sin}[d\,x]\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])+\left(4\,(A-i\,B)\,\text{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\text{Cos}[c+d\,x]^4\,(i\,\text{Cos}[3\,c]+\text{Sin}[3\,c])\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{i\,\text{Tan}[c+d\,x]}\right)$$

Problem 131: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 136 leaves, 5 steps):

$$\frac{8\,(-1)^{1/4}\,a^3\,(A-i\,B)\,\text{ArcTan}\left[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\right]}{d}-\frac{16\,a^3\,A\sqrt{\text{Tan}[c+d\,x]}}{3\,d}-\frac{2\,a\,A\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}-\frac{2\,(7\,i\,A+3\,B)\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{3\,d\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 3, 331 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\text{Cos}[c+d\,x]^4\left(-i\,\text{Csc}[c]\,(9\,A\,\text{Cos}[c]-3\,i\,B\,\text{Cos}[c]+i\,A\,\text{Sin}[c]+3\,B\,\text{Sin}[c])\left(\frac{2}{3}\text{Cos}[3\,c]-\frac{2}{3}i\,\text{Sin}[3\,c]\right)+\text{Csc}[c+d\,x]^2\left(-\frac{2}{3}A\,\text{Cos}[3\,c]+\frac{2}{3}i\,A\,\text{Sin}[3\,c]\right)+\text{Csc}[c]\,\text{Csc}[c+d\,x]\,(2\,\text{Cos}[3\,c]-2\,i\,\text{Sin}[3\,c])\,(3\,i\,A\,\text{Sin}[d\,x]+B\,\text{Sin}[d\,x])\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])-\left(4\,(A-i\,B)\,\text{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\text{Cos}[c+d\,x]^4\,(\text{Cos}[3\,c]-i\,\text{Sin}[3\,c])\sqrt{\text{Tan}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{i\,\text{Tan}[c+d\,x]}\right)$$

Problem 132: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 144 leaves, 5 steps):

$$\frac{8\,(-1)^{1/4}\,a^3\,(i\,A+B)\,\text{ArcTan}\left[(-1)^{3/4}\sqrt{\text{Tan}[c+d\,x]}\right]}{d}+\frac{16\,a^3\,(6\,A-5\,i\,B)}{15\,d\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{5\,d\,\text{Tan}[c+d\,x]^{5/2}}-\frac{2\,(9\,i\,A+5\,B)\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{15\,d\,\text{Tan}[c+d\,x]^{3/2}}$$

Result (type 3, 386 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$
$$\mathrm{Cos}[c+d\,x]^4\left(\mathrm{Csc}[c]\,(63\,A\,\mathrm{Cos}[c]-45\,i\,B\,\mathrm{Cos}[c]+15\,i\,A\,\mathrm{Sin}[c]+5\,B\,\mathrm{Sin}[c])\left(\frac{2}{15}\mathrm{Cos}[3\,c]-\frac{2}{15}i\,\mathrm{Sin}[3\,c]\right)+\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^2\right.$$
$$(3\,A\,\mathrm{Cos}[c]+15\,i\,A\,\mathrm{Sin}[c]+5\,B\,\mathrm{Sin}[c])\left(-\frac{2}{15}\mathrm{Cos}[3\,c]+\frac{2}{15}i\,\mathrm{Sin}[3\,c]\right)+A\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^3\left(\frac{2}{5}\mathrm{Cos}[3\,c]-\frac{2}{5}i\,\mathrm{Sin}[3\,c]\right)\mathrm{Sin}[d\,x]+$$
$$\left.\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\left(-\frac{6}{5}\mathrm{Cos}[3\,c]+\frac{6}{5}i\,\mathrm{Sin}[3\,c]\right)(7\,A\,\mathrm{Sin}[d\,x]-5\,i\,B\,\mathrm{Sin}[d\,x])\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])+$$
$$\left(4\,(A-i\,B)\,\mathrm{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\mathrm{Cos}[c+d\,x]^4\,(\mathrm{Cos}[3\,c]-i\,\mathrm{Sin}[3\,c])\,\mathrm{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(i\,\mathrm{Tan}[c+d\,x])^{3/2}\right)$$

Problem 133: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 169 leaves, 6 steps):

$$-\frac{8\,(-1)^{1/4}\,a^3\,(A-i\,B)\,\mathrm{ArcTan}\left[(-1)^{3/4}\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{d}+\frac{8\,a^3\,(23\,A-21\,i\,B)}{105\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+$$
$$\frac{8\,a^3\,(i\,A+B)}{d\sqrt{\mathrm{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^2}{7\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}-\frac{2\,(11\,i\,A+7\,B)\left(a^3+i\,a^3\,\mathrm{Tan}[c+d\,x]\right)}{35\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}$$

Result (type 3, 434 leaves):

$$\frac{1}{d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$
$$\mathrm{Cos}[c+d\,x]^4\left(\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^2\,(-63\,i\,A\,\mathrm{Cos}[c]-21\,B\,\mathrm{Cos}[c]+170\,A\,\mathrm{Sin}[c]-105\,i\,B\,\mathrm{Sin}[c])\left(\frac{2}{105}\mathrm{Cos}[3\,c]-\frac{2}{105}i\,\mathrm{Sin}[3\,c]\right)+\right.$$
$$\mathrm{Csc}[c]\,(483\,i\,A\,\mathrm{Cos}[c]+441\,B\,\mathrm{Cos}[c]-155\,A\,\mathrm{Sin}[c]+105\,i\,B\,\mathrm{Sin}[c])\left(\frac{2}{105}\mathrm{Cos}[3\,c]-\frac{2}{105}i\,\mathrm{Sin}[3\,c]\right)+$$
$$\mathrm{Csc}[c+d\,x]^4\left(-\frac{2}{7}A\,\mathrm{Cos}[3\,c]+\frac{2}{7}i\,A\,\mathrm{Sin}[3\,c]\right)+\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]\left(\frac{2}{5}\mathrm{Cos}[3\,c]-\frac{2}{5}i\,\mathrm{Sin}[3\,c]\right)(-23\,i\,A\,\mathrm{Sin}[d\,x]-21\,B\,\mathrm{Sin}[d\,x])+$$
$$\left.\mathrm{Csc}[c]\,\mathrm{Csc}[c+d\,x]^3\left(\frac{2}{5}\mathrm{Cos}[3\,c]-\frac{2}{5}i\,\mathrm{Sin}[3\,c]\right)(3\,i\,A\,\mathrm{Sin}[d\,x]+B\,\mathrm{Sin}[d\,x])\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])+$$
$$\left(4\,(A-i\,B)\,\mathrm{ArcCosh}\left[e^{2\,i\,(c+d\,x)}\right]\mathrm{Cos}[c+d\,x]^4\,(\mathrm{Cos}[3\,c]-i\,\mathrm{Sin}[3\,c])\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(\mathrm{Cos}[d\,x]+i\,\mathrm{Sin}[d\,x])^3\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\sqrt{i\,\mathrm{Tan}[c+d\,x]}\right)$$

Problem 154: Unable to integrate problem.

$$\int \tan[c+d x]^{3/2} \sqrt{a+i a \tan[c+d x]} \,(A+B \tan[c+d x])\, dx$$

Optimal (type 3, 200 leaves, 9 steps):

$$\frac{(-1)^{3/4} \sqrt{a}\, (4 i A+7 B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\tan[c+d x]}}{\sqrt{a+i a \tan[c+d x]}}\right]}{4 d}+\frac{(1+i) \sqrt{a}\, (i A+B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\tan[c+d x]}}{\sqrt{a+i a \tan[c+d x]}}\right]}{d}+$$
$$\frac{(4 A-i B) \sqrt{\tan[c+d x]} \sqrt{a+i a \tan[c+d x]}}{4 d}+\frac{B \tan[c+d x]^{3/2} \sqrt{a+i a \tan[c+d x]}}{2 d}$$

Result (type 8, 40 leaves):

$$\int \tan[c+d x]^{3/2} \sqrt{a+i a \tan[c+d x]} \,(A+B \tan[c+d x])\, dx$$

Problem 155: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\tan[c+d x]} \sqrt{a+i a \tan[c+d x]} \,(A+B \tan[c+d x])\, dx$$

Optimal (type 3, 152 leaves, 8 steps):

$$-\frac{(-1)^{3/4} \sqrt{a}\, (2 A-i B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\tan[c+d x]}}{\sqrt{a+i a \tan[c+d x]}}\right]}{d}-\frac{(1+i) \sqrt{a}\, (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\tan[c+d x]}}{\sqrt{a+i a \tan[c+d x]}}\right]}{d}+\frac{B \sqrt{\tan[c+d x]} \sqrt{a+i a \tan[c+d x]}}{d}$$

Result (type 3, 560 leaves):

$$-\frac{1}{4 \sqrt{2}\, d \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\sec[c+d x]}}\, e^{-i (c+d x)} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}$$
$$\left(-8 B e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}+8 (i A+B) \left(1+e^{2 i (c+d x)}\right) \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]-i \sqrt{2}\, (2 A-i B) \left(1+e^{2 i (c+d x)}\right)\right.$$
$$\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+2 i \sqrt{2}\, A \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+$$
$$\sqrt{2}\, B \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+2 i \sqrt{2}\, A e^{2 i (c+d x)} \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+$$
$$\left.\sqrt{2}\, B e^{2 i (c+d x)} \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right) \sqrt{a+i a \tan[c+d x]}$$

Problem 156: Result more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+i a \tan[c+d x]} \,(A+B \tan[c+d x])}{\sqrt{\tan[c+d x]}}\, dx$$

Optimal (type 3, 112 leaves, 7 steps):

$$-\frac{2\,(-1)^{3/4}\,\sqrt{a}\,B\,\text{ArcTan}\left[\frac{(-1)^{3/4}\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{(1+i)\,\sqrt{a}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}$$

Result (type 3, 241 leaves) :

$$\frac{1}{4\,d\,\sqrt{-\frac{i\,\left(-1+e^{2\,i\,(c+d\,x)}\right)}{1+e^{2\,i\,(c+d\,x)}}}}e^{-i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\left((-4\,i\,A-4\,B)\,\text{Log}\left[e^{i\,(c+d\,x)}+\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]+\right.$$
$$\left.\sqrt{2}\,B\,\left(\text{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}-2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]-\text{Log}\left[1-3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,e^{i\,(c+d\,x)}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]\right)\right)\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}$$

- **Problem 161: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 248 leaves, 10 steps) :

$$\frac{(-1)^{3/4}\,a^{3/2}\,(22\,i\,A+23\,B)\,\text{ArcTan}\left[\frac{(-1)^{3/4}\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{8\,d}+$$
$$\frac{(2+2\,i)\,a^{3/2}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{(1+i)\,\sqrt{a}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{a\,(10\,A-9\,i\,B)\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{8\,d}+$$
$$\frac{a\,(6\,i\,A+7\,B)\,\text{Tan}[c+d\,x]^{3/2}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{12\,d}+\frac{i\,a\,B\,\text{Tan}[c+d\,x]^{5/2}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{3\,d}$$

Result (type 3, 527 leaves) :

$$\left(e^{-i c}\sqrt{e^{i d x}}\sqrt{-\frac{i\left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\left(-128\,(A-i B)\,\mathrm{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\right.\right.$$

$$\left.\sqrt{2}\,(22 A-23 i B)\left(\mathrm{Log}\left[1-3 e^{2 i (c+d x)}-2\sqrt{2}\,e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]-\mathrm{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2}\,e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)$$

$$\left.(a+i a \mathrm{Tan}[c+d x])^{3/2}\,(A+B \mathrm{Tan}[c+d x])\right)\Big/\left(32\sqrt{2}\,d\sqrt{-1+e^{2 i (c+d x)}}\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\,\mathrm{Sec}[c+d x]^{5/2}\right.$$

$$\left.(\mathrm{Cos}[d x]+i \mathrm{Sin}[d x])^{3/2}\,(A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\right)+$$

$$\left(\mathrm{Cos}[c+d x]^2\left((6 A-7 i B)\left(\frac{7 \mathrm{Cos}[c]}{24}-\frac{7}{24} i \mathrm{Sin}[c]\right)+\mathrm{Sec}[c+d x]^2\left(\frac{1}{3} i B \mathrm{Cos}[c]+\frac{1}{3} B \mathrm{Sin}[c]\right)+\right.\right.$$

$$\left.\left.(6 A-7 i B)\,\mathrm{Sec}[c+d x]\left(-\frac{1}{12}\mathrm{Cos}[2 c+d x]+\frac{1}{12} i \mathrm{Sin}[2 c+d x]\right)\right)\sqrt{\mathrm{Tan}[c+d x]}\right.$$

$$\left.(a+i a \mathrm{Tan}[c+d x])^{3/2}\,(A+B \mathrm{Tan}[c+d x])\right)\Big/\left(d\,(\mathrm{Cos}[d x]+i \mathrm{Sin}[d x])\,(A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\right)$$

■ Problem 162: Result more than twice size of optimal antiderivative.

$$\int\sqrt{\mathrm{Tan}[c+d x]}\,(a+i a \mathrm{Tan}[c+d x])^{3/2}\,(A+B \mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 204 leaves, 9 steps):

$$-\frac{(-1)^{3/4} a^{3/2}\,(12 A-11 i B)\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i a \mathrm{Tan}[c+d x]}}\right]}{4 d}-\frac{(2+2 i)\,a^{3/2}\,(A-i B)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i a \mathrm{Tan}[c+d x]}}\right]}{d}+$$

$$\frac{a\,(4 i A+5 B)\sqrt{\mathrm{Tan}[c+d x]}\,\sqrt{a+i a \mathrm{Tan}[c+d x]}}{4 d}+\frac{i a B \mathrm{Tan}[c+d x]^{3/2}\sqrt{a+i a \mathrm{Tan}[c+d x]}}{2 d}$$

Result (type 3, 496 leaves):

$$\left(e^{-i c}\sqrt{e^{i d x}}\sqrt{-\frac{i\left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\left(-64 i (A-i B) \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\sqrt{2}(12 i A+11 B)\left(\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]-\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)(a+i a \operatorname{Tan}[c+d x])^{3/2}(A+B \operatorname{Tan}[c+d x])\right)\Big/\left(16\sqrt{2} d\sqrt{-1+e^{2 i (c+d x)}}\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\operatorname{Sec}[c+d x]^{5/2}(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^{3/2}(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$

$$\left(\operatorname{Cos}[c+d x]^2\left((4 i A+7 B)\left(\frac{\operatorname{Cos}[c]}{4}-\frac{1}{4} i \operatorname{Sin}[c]\right)+\operatorname{Sec}[c+d x]\left(-\frac{1}{2} B \operatorname{Cos}[2 c+d x]+\frac{1}{2} i B \operatorname{Sin}[2 c+d x]\right)\right)\sqrt{\operatorname{Tan}[c+d x]}(a+i a \operatorname{Tan}[c+d x])^{3/2}(A+B \operatorname{Tan}[c+d x])\right)\Big/\left(d(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

- **Problem 163: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i a \operatorname{Tan}[c+d x])^{3/2}(A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 156 leaves, 8 steps):

$$-\frac{(-1)^{3/4} a^{3/2}(2 i A+3 B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{(2+2 i) a^{3/2}(i A+B) \operatorname{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{i a B\sqrt{\operatorname{Tan}[c+d x]}\sqrt{a+i a \operatorname{Tan}[c+d x]}}{d}$$

Result (type 3, 481 leaves):

$$\frac{1}{4\sqrt{2} d\sqrt{-1+e^{2 i (c+d x)}}} a e^{-i (c+d x)}\left(4 i\sqrt{2} B e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}+8\sqrt{2}(A-i B)\left(1+e^{2 i (c+d x)}\right)\operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]-(2 A-3 i B)\left(1+e^{2 i (c+d x)}\right)\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]+2 A \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]-3 i B \operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]+2 A e^{2 i (c+d x)}\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]-3 i B e^{2 i (c+d x)}\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2} e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]\right)\sqrt{\operatorname{Tan}[c+d x]}\sqrt{a+i a \operatorname{Tan}[c+d x]}$$

Problem 164: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^{3/2} (A+B \operatorname{Tan}[c+d x])}{\operatorname{Tan}[c+d x]^{3/2}} \, dx$$

Optimal (type 3, 146 leaves, 8 steps):

$$\frac{2 (-1)^{1/4} a^{3/2} B \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{(2+2 i) a^{3/2} (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{2 a A \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d \sqrt{\operatorname{Tan}[c+d x]}}$$

Result (type 3, 307 leaves):

$$-\frac{1}{4 \sqrt{2} d \sqrt{-1+e^{2 i (c+d x)}}}$$

$$a e^{-\frac{1}{2} i (4 c+5 d x)} \sqrt{\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}} \left(1+e^{2 i (c+d x)}\right)^2 \left(4 A \sqrt{-1+e^{2 i (c+d x)}} \operatorname{Csc}[c+d x]+(-8 i A-8 B) \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\right.$$

$$\left.\sqrt{2} B \left(\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]-\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)$$

$$\operatorname{Sec}[c+d x] \left(\operatorname{Cos}\left[\frac{d x}{2}\right]+i \operatorname{Sin}\left[\frac{d x}{2}\right]\right) \sqrt{\operatorname{Tan}[c+d x]}$$

Problem 170: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\operatorname{Tan}[c+d x]} (a+i a \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 252 leaves, 10 steps):

$$-\frac{(-1)^{3/4} a^{5/2} (46 A-45 i B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{8 d}-$$

$$\frac{(4+4 i) a^{5/2} (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{a^2 (18 i A+19 B) \sqrt{\operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}{8 d}-$$

$$\frac{a^2 (2 A-3 i B) \operatorname{Tan}[c+d x]^{3/2} \sqrt{a+i a \operatorname{Tan}[c+d x]}}{4 d}+\frac{i a B \operatorname{Tan}[c+d x]^{3/2} (a+i a \operatorname{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 537 leaves):

$$\left(e^{-2 i c} \sqrt{e^{i d x}} \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}} \left(-256 i (A-i B) \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\right.\right.$$

$$\left.\sqrt{2} (46 i A+45 B) \left(\operatorname{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]-\operatorname{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)$$

$$\left.(a+i a \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])\right) \Big/ \left(32 \sqrt{2} d \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \operatorname{Sec}[c+d x]^{7/2}\right.$$

$$\left.(\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^{5/2} (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$

$$\left(\operatorname{Cos}[c+d x]^3 \left((66 i A+91 B) \left(\frac{1}{24} \operatorname{Cos}[2 c]-\frac{1}{24} i \operatorname{Sin}[2 c]\right)+\operatorname{Sec}[c+d x]^2 \left(-\frac{1}{3} B \operatorname{Cos}[2 c]+\frac{1}{3} i B \operatorname{Sin}[2 c]\right)+\right.\right.$$

$$\left.(6 A-13 i B) \operatorname{Sec}[c+d x] \left(-\frac{1}{12} i \operatorname{Cos}[3 c+d x]-\frac{1}{12} \operatorname{Sin}[3 c+d x]\right)\right) \sqrt{\operatorname{Tan}[c+d x]}$$

$$\left.(a+i a \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])\right) \Big/ \left(d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

- **Problem 171: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 206 leaves, 9 steps) :

$$-\frac{(-1)^{3/4} a^{5/2} (20 i A+23 B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{4 d}+\frac{(4-4 i) a^{5/2} (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{d}-$$

$$\frac{a^2 (4 A-7 i B) \sqrt{\operatorname{Tan}[c+d x]} \sqrt{a+i a \operatorname{Tan}[c+d x]}}{4 d}+\frac{i a B \sqrt{\operatorname{Tan}[c+d x]} (a+i a \operatorname{Tan}[c+d x])^{3/2}}{2 d}$$

Result (type 3, 499 leaves) :

$$\left(e^{-2ic}\sqrt{e^{idx}}\sqrt{-\frac{i\left(-1+e^{2i(c+dx)}\right)}{1+e^{2i(c+dx)}}}\left(128\,(A-iB)\,\mathrm{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]-\right.\right.$$

$$\left.\sqrt{2}\,(20A-23iB)\left(\mathrm{Log}\left[1-3e^{2i(c+dx)}-2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]-\mathrm{Log}\left[1-3e^{2i(c+dx)}+2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]\right)\right)$$

$$\left.(a+ia\,\mathrm{Tan}[c+dx])^{5/2}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(16\sqrt{2}\,d\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\,\mathrm{Sec}[c+dx]^{7/2}\right.$$

$$\left.(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^{5/2}\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\right)+$$

$$\left(\mathrm{Cos}[c+dx]^3\left((4A-11iB)\left(-\frac{1}{4}\mathrm{Cos}[2c]+\frac{1}{4}i\,\mathrm{Sin}[2c]\right)+\mathrm{Sec}[c+dx]\left(-\frac{1}{2}iB\,\mathrm{Cos}[3c+dx]-\frac{1}{2}B\,\mathrm{Sin}[3c+dx]\right)\right)\right.$$

$$\left.\sqrt{\mathrm{Tan}[c+dx]}\,(a+ia\,\mathrm{Tan}[c+dx])^{5/2}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(d\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^2\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\right)$$

- **Problem 172: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+ia\,\mathrm{Tan}[c+dx])^{5/2}\,(A+B\,\mathrm{Tan}[c+dx])}{\mathrm{Tan}[c+dx]^{3/2}}\,dx$$

Optimal (type 3, 196 leaves, 9 steps) :

$$\frac{(-1)^{3/4}a^{5/2}\,(2A-5iB)\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+ia\,\mathrm{Tan}[c+dx]}}\right]}{d}+\frac{(4+4i)\,a^{5/2}\,(A-iB)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+ia\,\mathrm{Tan}[c+dx]}}\right]}{d}+$$

$$\frac{a^2\,(2iA-B)\sqrt{\mathrm{Tan}[c+dx]}\,\sqrt{a+ia\,\mathrm{Tan}[c+dx]}}{d}-\frac{2aA\,(a+ia\,\mathrm{Tan}[c+dx])^{3/2}}{d\sqrt{\mathrm{Tan}[c+dx]}}$$

Result (type 3, 493 leaves) :

$$\left(e^{-2 i c}\sqrt{e^{i d x}}\sqrt{-\frac{i\left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\left(32 (i A+B)\,\mathrm{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]-\right.\right.$$

$$i\sqrt{2}\,(2 A-5 i B)\left(\mathrm{Log}\left[1-3 e^{2 i (c+d x)}-2\sqrt{2}\,e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]-\mathrm{Log}\left[1-3 e^{2 i (c+d x)}+2\sqrt{2}\,e^{i (c+d x)}\sqrt{-1+e^{2 i (c+d x)}}\right]\right)\Bigg)$$

$$\left.(a+i a\,\mathrm{Tan}[c+d x])^{5/2}(A+B\,\mathrm{Tan}[c+d x])\right)\Bigg/\left(4\sqrt{2}\,d\sqrt{-1+e^{2 i (c+d x)}}\sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\,\mathrm{Sec}[c+d x]^{7/2}\right.$$

$$\left.(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])^{5/2}(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+$$

$$\Big(\mathrm{Cos}[c+d x]^3\,(\mathrm{Csc}[c]\,(2 A\,\mathrm{Cos}[c]+B\,\mathrm{Sin}[c])\,(-\mathrm{Cos}[2 c]+i\,\mathrm{Sin}[2 c])+A\,\mathrm{Csc}[c]\,\mathrm{Csc}[c+d x]\,(2\,\mathrm{Cos}[2 c]-2 i\,\mathrm{Sin}[2 c])\,\mathrm{Sin}[d x])$$

$$\sqrt{\mathrm{Tan}[c+d x]}\,(a+i a\,\mathrm{Tan}[c+d x])^{5/2}(A+B\,\mathrm{Tan}[c+d x])\Big)\Big/\left(d\,(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])^2(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)$$

- **Problem 173: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i a\,\mathrm{Tan}[c+d x])^{5/2}(A+B\,\mathrm{Tan}[c+d x])}{\mathrm{Tan}[c+d x]^{5/2}}\,dx$$

Optimal (type 3, 190 leaves, 9 steps) :

$$\frac{2(-1)^{3/4}a^{5/2}B\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i a\,\mathrm{Tan}[c+d x]}}\right]}{d}+\frac{(4+4 i)\,a^{5/2}(i A+B)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i a\,\mathrm{Tan}[c+d x]}}\right]}{d}-$$

$$\frac{2 a^2(2 i A+B)\sqrt{a+i a\,\mathrm{Tan}[c+d x]}}{d\sqrt{\mathrm{Tan}[c+d x]}}-\frac{2 a A\,(a+i a\,\mathrm{Tan}[c+d x])^{3/2}}{3 d\,\mathrm{Tan}[c+d x]^{3/2}}$$

Result (type 3, 618 leaves) :

$$\left(e^{-i(3c+dx)}\sqrt{e^{idx}}\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\right.$$

$$\left(\sqrt{2}\,B\,\text{Log}\left[\frac{2e^{\frac{7ic}{2}}\left(\sqrt{2}-i\sqrt{2}\,e^{i(c+dx)}+2i\sqrt{-1+e^{2i(c+dx)}}\right)}{B\left(-i+e^{i(c+dx)}\right)}\right]+8(iA+B)\,\text{Log}\left[e^{-ic}\left(e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right)\right]-\right.$$

$$\left.\left.\sqrt{2}\,B\,\text{Log}\left[-\frac{2ie^{\frac{7ic}{2}}\left(-i\sqrt{2}+\sqrt{2}\,e^{i(c+dx)}+2\sqrt{-1+e^{2i(c+dx)}}\right)}{B\left(i+e^{i(c+dx)}\right)}\right]\right)(a+ia\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])\right)\Big/$$

$$\left(\sqrt{2}\,d\sqrt{-\frac{i\left(-1+e^{2i(c+dx)}\right)}{1+e^{2i(c+dx)}}}\,\text{Sec}[c+dx]^{7/2}(\text{Cos}[dx]+i\,\text{Sin}[dx])^{5/2}(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)+$$

$$\left(\text{Cos}[c+dx]^3\left(-i\,\text{Csc}[c]\,(7A\,\text{Cos}[c]-3iB\,\text{Cos}[c]+iA\,\text{Sin}[c])\left(\frac{2}{3}\text{Cos}[2c]-\frac{2}{3}i\,\text{Sin}[2c]\right)+\right.\right.$$

$$\left.\text{Csc}[c+dx]^2\left(-\frac{2}{3}A\,\text{Cos}[2c]+\frac{2}{3}iA\,\text{Sin}[2c]\right)+\text{Csc}[c]\,\text{Csc}[c+dx]\left(\frac{2}{3}\text{Cos}[2c]-\frac{2}{3}i\,\text{Sin}[2c]\right)(7iA\,\text{Sin}[dx]+3B\,\text{Sin}[dx])\right)$$

$$\left.\sqrt{\text{Tan}[c+dx]}\,(a+ia\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])\right)\Big/\left(d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^2(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)$$

- **Problem 177: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+ia\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])}{\text{Tan}[c+dx]^{13/2}}\,dx$$

Optimal (type 3, 323 leaves, 9 steps):

$$\frac{(4+4i)\,a^{5/2}(iA+B)\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+ia\,\text{Tan}[c+dx]}}\right]}{d}-\frac{2a^2(14iA+11B)\sqrt{a+ia\,\text{Tan}[c+dx]}}{99\,d\,\text{Tan}[c+dx]^{9/2}}+$$

$$\frac{2a^2(212A-209iB)\sqrt{a+ia\,\text{Tan}[c+dx]}}{693\,d\,\text{Tan}[c+dx]^{7/2}}+\frac{4a^2(250iA+253B)\sqrt{a+ia\,\text{Tan}[c+dx]}}{1155\,d\,\text{Tan}[c+dx]^{5/2}}-$$

$$\frac{8a^2(655A-649iB)\sqrt{a+ia\,\text{Tan}[c+dx]}}{3465\,d\,\text{Tan}[c+dx]^{3/2}}-\frac{8a^2(2155iA+2167B)\sqrt{a+ia\,\text{Tan}[c+dx]}}{3465\,d\sqrt{\text{Tan}[c+dx]}}-\frac{2aA\,(a+ia\,\text{Tan}[c+dx])^{3/2}}{11\,d\,\text{Tan}[c+dx]^{11/2}}$$

Result (type 3, 656 leaves):

$$\left(4\sqrt{2}\ (i A+B)\ e^{-i(3c+dx)}\sqrt{e^{i d x}}\ \sqrt{-1+e^{2i(c+dx)}}\ \sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\ \mathrm{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right](a+i a \mathrm{Tan}[c+dx])^{5/2}\right)\Big/$$

$$\left(d\sqrt{-\frac{i\left(-1+e^{2i(c+dx)}\right)}{1+e^{2i(c+dx)}}}\ \mathrm{Sec}[c+dx]^{5/2}(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^{5/2}\right)+$$

$$\frac{1}{(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^2}\mathrm{Cos}[c+dx]^2\left(-i\,\mathrm{Csc}[c]\ (10925 A \mathrm{Cos}[c]-10571 i B \mathrm{Cos}[c]+3995 i A \mathrm{Sin}[c]+3641 B \mathrm{Sin}[c])\right.$$

$$\left(\frac{2\mathrm{Cos}[2c]}{3465 d}-\frac{2 i \mathrm{Sin}[2c]}{3465 d}\right)+\mathrm{Csc}[c+dx]^6\left(-\frac{2 A \mathrm{Cos}[2c]}{11 d}+\frac{2 i A \mathrm{Sin}[2c]}{11 d}\right)+$$

$$\mathrm{Csc}[c]\,\mathrm{Csc}[c+dx]^2\,(-2575 i A-2398 B+8795 i A \mathrm{Cos}[2c]+6974 B \mathrm{Cos}[2c]-8795 A \mathrm{Sin}[2c]+6974 i B \mathrm{Sin}[2c])\left(\frac{\mathrm{Cos}[3c]}{3465 d}-\frac{i\,\mathrm{Sin}[3c]}{3465 d}\right)+$$

$$\mathrm{Csc}[c]\,\mathrm{Csc}[c+dx]^4\,(120 i A+66 B-281 i A \mathrm{Cos}[2c]-143 B \mathrm{Cos}[2c]+281 A \mathrm{Sin}[2c]-143 i B \mathrm{Sin}[2c])\left(\frac{2\mathrm{Cos}[3c]}{693 d}-\frac{2 i \mathrm{Sin}[3c]}{693 d}\right)+$$

$$\mathrm{Csc}[c]\,\mathrm{Csc}[c+dx]^3\left(\frac{4\mathrm{Cos}[2c]}{3465 d}-\frac{4 i \mathrm{Sin}[2c]}{3465 d}\right)(-1555 i A \mathrm{Sin}[dx]-1144 B \mathrm{Sin}[dx])+$$

$$\mathrm{Csc}[c]\,\mathrm{Csc}[c+dx]^5\left(\frac{2\mathrm{Cos}[2c]}{99 d}-\frac{2 i \mathrm{Sin}[2c]}{99 d}\right)(23 i A \mathrm{Sin}[dx]+11 B \mathrm{Sin}[dx])+$$

$$\left.\mathrm{Csc}[c]\,\mathrm{Csc}[c+dx]\left(\frac{2\mathrm{Cos}[2c]}{3465 d}-\frac{2 i \mathrm{Sin}[2c]}{3465 d}\right)(10925 i A \mathrm{Sin}[dx]+10571 B \mathrm{Sin}[dx])\right)\sqrt{\mathrm{Tan}[c+dx]}\ (a+i a \mathrm{Tan}[c+dx])^{5/2}$$

- **Problem 178: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i a \mathrm{Tan}[c+dx])^{5/2}\left(\frac{3bB}{2a}+B\,\mathrm{Tan}[c+dx]\right)}{\mathrm{Tan}[c+dx]^{5/2}}\,dx$$

Optimal (type 3, 190 leaves, 9 steps):

$$\frac{2(-1)^{3/4}a^{5/2}B\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+i a \mathrm{Tan}[c+dx]}}\right]}{d}+\frac{(2+2i)a^{3/2}(2a+3ib)B\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+i a \mathrm{Tan}[c+dx]}}\right]}{d}-$$

$$\frac{2a(a+3ib)B\sqrt{a+i a \mathrm{Tan}[c+dx]}}{d\sqrt{\mathrm{Tan}[c+dx]}}-\frac{bB(a+i a \mathrm{Tan}[c+dx])^{3/2}}{d\,\mathrm{Tan}[c+dx]^{3/2}}$$

Result (type 3, 555 leaves):

$$\left(i\, e^{-2 i c} \sqrt{e^{i d x}} \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}} \left(8 (2 a+3 i b) \text{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\sqrt{2}\, a \left(-\text{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+\text{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2}\, e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right) (a+i a \text{Tan}[c+d x])^{5/2} \left(\frac{3 b B}{2 a}+B \text{Tan}[c+d x]\right)\right) \Big/ \left(\sqrt{2}\, d \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \text{Sec}[c+d x]^{7/2} (\text{Cos}[d x]+i \text{Sin}[d x])^{5/2} (3 b \text{Cos}[c+d x]+2 a \text{Sin}[c+d x])\right)+$$

$$\left(\text{Cos}[c+d x]^3 \left(-i \text{Csc}[c] (-2 i a \text{Cos}[c]+7 b \text{Cos}[c]+i b \text{Sin}[c]) (2 \text{Cos}[2 c]-2 i \text{Sin}[2 c])+\text{Csc}[c+d x]^2 (-2 b \text{Cos}[2 c]+2 i b \text{Sin}[2 c])+\text{Csc}[c] \text{Csc}[c+d x] (2 \text{Cos}[2 c]-2 i \text{Sin}[2 c]) (2 a \text{Sin}[d x]+7 i b \text{Sin}[d x])\right) \sqrt{\text{Tan}[c+d x]} (a+i a \text{Tan}[c+d x])^{5/2} \left(\frac{3 b B}{2 a}+B \text{Tan}[c+d x]\right)\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (3 b \text{Cos}[c+d x]+2 a \text{Sin}[c+d x])\right)$$

- **Problem 185: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^{3/2} (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 203 leaves, 9 steps) :

$$\frac{2 (-1)^{3/4} B \text{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right]}{a^{3/2} d}-\frac{\left(\frac{1}{4}-\frac{i}{4}\right) (A-i B) \text{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right]}{a^{3/2} d}+\frac{(i A-B) \text{Tan}[c+d x]^{3/2}}{3 d (a+i a \text{Tan}[c+d x])^{3/2}}+\frac{(A+3 i B) \sqrt{\text{Tan}[c+d x]}}{2 a d \sqrt{a+i a \text{Tan}[c+d x]}}$$

Result (type 3, 552 leaves) :

$$-\left(e^{2ic}\sqrt{e^{idx}}\sqrt{-\frac{i\left(-1+e^{2i(c+dx)}\right)}{1+e^{2i(c+dx)}}}\left((A-iB)\,\mathrm{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]+\right.\right.$$

$$\left.\left.i\sqrt{2}\,B\left(\mathrm{Log}\left[1-3e^{2i(c+dx)}-2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]-\mathrm{Log}\left[1-3e^{2i(c+dx)}+2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]\right)\right)$$

$$\left.\sqrt{\mathrm{Sec}[c+dx]}\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^{3/2}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/$$

$$\left(2\sqrt{2}\,d\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}\right)+$$

$$\left(\mathrm{Sec}[c+dx]\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^2\left(\frac{1}{4}(A+3iB)\,\mathrm{Cos}[2dx]+(A+iB)\,\mathrm{Cos}[4dx]\left(-\frac{1}{12}\mathrm{Cos}[2c]+\frac{1}{12}i\,\mathrm{Sin}[2c]\right)+\right.\right.$$

$$(2A+5iB)\left(\frac{1}{6}\mathrm{Cos}[2c]+\frac{1}{6}i\,\mathrm{Sin}[2c]\right)+\frac{1}{4}(-iA+3B)\,\mathrm{Sin}[2dx]+(A+iB)\left(\frac{1}{12}i\,\mathrm{Cos}[2c]+\frac{1}{12}\mathrm{Sin}[2c]\right)\mathrm{Sin}[4dx]\Bigg)$$

$$\left.\sqrt{\mathrm{Tan}[c+dx]}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(d\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}\right)$$

- **Problem 189: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+dx]}{\mathrm{Tan}[c+dx]^{5/2}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}}\,dx$$

Optimal (type 3, 240 leaves, 7 steps):

$$\frac{\left(\frac{1}{4}+\frac{i}{4}\right)(iA+B)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}\right]}{a^{3/2}\,d}+\frac{A+iB}{3\,d\,\mathrm{Tan}[c+dx]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}}+$$

$$\frac{5A+3iB}{2\,a\,d\,\mathrm{Tan}[c+dx]^{3/2}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}-\frac{(21A+11iB)\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{6\,a^2\,d\,\mathrm{Tan}[c+dx]^{3/2}}+\frac{(39iA-25B)\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}{6\,a^2\,d\sqrt{\mathrm{Tan}[c+dx]}}$$

Result (type 3, 624 leaves):

$$\left((i A+B)\, e^{i (c-d x)} \sqrt{e^{i d x}} \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \operatorname{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right] \sqrt{\operatorname{Sec}[c+d x]}\, (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^{3/2}\right.$$

$$\left.(A+B \operatorname{Tan}[c+d x])\right) \Big/ \left(2 \sqrt{2}\, d \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\, (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\, (a+i a \operatorname{Tan}[c+d x])^{3/2}\right)+$$

$$\frac{1}{d\, (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\, (a+i a \operatorname{Tan}[c+d x])^{3/2}} \operatorname{Sec}[c+d x]\, (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^2$$

$$\left(-\frac{1}{4} (7 A+5 i B) \operatorname{Cos}[2 d x]+(A+i B) \operatorname{Cos}[4 d x] \left(-\frac{1}{12} \operatorname{Cos}[2 c]+\frac{1}{12} i \operatorname{Sin}[2 c]\right)+\right.$$

$$i \operatorname{Csc}[c]\, (20 A \operatorname{Cos}[c]+12 i B \operatorname{Cos}[c]+6 i A \operatorname{Sin}[c]-7 B \operatorname{Sin}[c]) \left(\frac{1}{6} \operatorname{Cos}[2 c]+\frac{1}{6} i \operatorname{Sin}[2 c]\right)+$$

$$\operatorname{Csc}[c+d x]^2 \left(-\frac{2}{3} A \operatorname{Cos}[2 c]-\frac{2}{3} i A \operatorname{Sin}[2 c]\right)+\frac{1}{4} i (7 A+5 i B) \operatorname{Sin}[2 d x]+(A+i B) \left(\frac{1}{12} i \operatorname{Cos}[2 c]+\frac{1}{12} \operatorname{Sin}[2 c]\right) \operatorname{Sin}[4 d x]+$$

$$\frac{2}{3} \operatorname{Csc}[c] \operatorname{Csc}[c+d x] \left(\frac{5}{2} A \operatorname{Cos}[2 c-d x]+\frac{3}{2} i B \operatorname{Cos}[2 c-d x]-\frac{5}{2} A \operatorname{Cos}[2 c+d x]-\frac{3}{2} i B \operatorname{Cos}[2 c+d x]+\right.$$

$$\left.\left.\frac{5}{2} i A \operatorname{Sin}[2 c-d x]-\frac{3}{2} B \operatorname{Sin}[2 c-d x]-\frac{5}{2} i A \operatorname{Sin}[2 c+d x]+\frac{3}{2} B \operatorname{Sin}[2 c+d x]\right)\right) \sqrt{\operatorname{Tan}[c+d x]}\, (A+B \operatorname{Tan}[c+d x])$$

- **Problem 190: Result more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c+d x]^{5/2} (A+B \operatorname{Tan}[c+d x])}{(a+i a \operatorname{Tan}[c+d x])^{5/2}}\, dx$$

Optimal (type 3, 249 leaves, 10 steps):

$$\frac{2 (-1)^{1/4} B \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{a^{5/2} d}+\frac{\left(\frac{1}{8}+\frac{i}{8}\right) (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right]}{a^{5/2} d}+$$

$$\frac{(i A-B) \operatorname{Tan}[c+d x]^{5/2}}{5 d (a+i a \operatorname{Tan}[c+d x])^{5/2}}+\frac{(A+3 i B) \operatorname{Tan}[c+d x]^{3/2}}{6 a d (a+i a \operatorname{Tan}[c+d x])^{3/2}}-\frac{(i A-7 B) \sqrt{\operatorname{Tan}[c+d x]}}{4 a^2 d \sqrt{a+i a \operatorname{Tan}[c+d x]}}$$

Result (type 3, 638 leaves):

$$\left(e^{3ic}\sqrt{e^{idx}}\sqrt{-\frac{i\left(-1+e^{2i(c+dx)}\right)}{1+e^{2i(c+dx)}}}\left((iA+B)\,\text{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]+\right.\right.$$
$$\left.\left.2\sqrt{2}\,B\left(-\text{Log}\left[1-3e^{2i(c+dx)}-2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]+\text{Log}\left[1-3e^{2i(c+dx)}+2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]\right)\right)$$
$$\left.\text{Sec}[c+dx]^{3/2}\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^{5/2}\,(A+B\,\text{Tan}[c+dx])\right)\Big/$$
$$\left(4\sqrt{2}\,d\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}\right)+$$
$$\frac{1}{d\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}}\text{Sec}[c+dx]^2\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^3$$
$$\left((-2iA+17B)\,\text{Cos}[2dx]\left(\frac{\text{Cos}[c]}{20}+\frac{1}{20}i\,\text{Sin}[c]\right)+(4A+9iB)\,\text{Cos}[4dx]\left(\frac{1}{60}i\,\text{Cos}[c]+\frac{\text{Sin}[c]}{60}\right)+(-23iA+123B)\right.$$
$$\left(\frac{1}{120}\text{Cos}[3c]+\frac{1}{120}i\,\text{Sin}[3c]\right)+(-iA+B)\,\text{Cos}[6dx]\left(\frac{1}{40}\text{Cos}[3c]-\frac{1}{40}i\,\text{Sin}[3c]\right)+(2A+17iB)\left(-\frac{\text{Cos}[c]}{20}-\frac{1}{20}i\,\text{Sin}[c]\right)\text{Sin}[2dx]+$$
$$\left.(4A+9iB)\left(\frac{\text{Cos}[c]}{60}-\frac{1}{60}i\,\text{Sin}[c]\right)\text{Sin}[4dx]+(A+iB)\left(-\frac{1}{40}\text{Cos}[3c]+\frac{1}{40}i\,\text{Sin}[3c]\right)\text{Sin}[6dx]\right)\sqrt{\text{Tan}[c+dx]}\,(A+B\,\text{Tan}[c+dx])$$

- **Problem 191: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+dx]^{3/2}\,(A+B\,\text{Tan}[c+dx])}{(a+i\,a\,\text{Tan}[c+dx])^{5/2}}\,dx$$

Optimal (type 3, 194 leaves, 6 steps):

$$-\frac{\left(\frac{1}{8}-\frac{i}{8}\right)(A-iB)\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+i\,a\,\text{Tan}[c+dx]}}\right]}{a^{5/2}\,d}+\frac{(iA-B)\,\text{Tan}[c+dx]^{3/2}}{5d\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}}+\frac{(A+11iB)\sqrt{\text{Tan}[c+dx]}}{30\,a\,d\,(a+i\,a\,\text{Tan}[c+dx])^{3/2}}+\frac{(13A-37iB)\sqrt{\text{Tan}[c+dx]}}{60\,a^2\,d\sqrt{a+i\,a\,\text{Tan}[c+dx]}}$$

Result (type 3, 527 leaves):

$$\Bigg((i A + B)\, e^{-i(-2c+dx)} \sqrt{e^{i dx}} \sqrt{-1 + e^{2i(c+dx)}} \sqrt{\frac{e^{i(c+dx)}}{1 + e^{2i(c+dx)}}} \,\mathrm{Log}\Big[e^{i(c+dx)} + \sqrt{-1 + e^{2i(c+dx)}}\Big] \,\mathrm{Sec}[c + dx]^{3/2} (\mathrm{Cos}[dx] + i\,\mathrm{Sin}[dx])^{5/2}$$

$$(A + B\,\mathrm{Tan}[c + dx])\Bigg) \Bigg/ \Bigg(4\sqrt{2}\, d \sqrt{-\frac{i\left(-1 + e^{2i(c+dx)}\right)}{1 + e^{2i(c+dx)}}} (A\,\mathrm{Cos}[c + dx] + B\,\mathrm{Sin}[c + dx]) (a + i\, a\,\mathrm{Tan}[c + dx])^{5/2}\Bigg) +$$

$$\frac{1}{d\,(A\,\mathrm{Cos}[c + dx] + B\,\mathrm{Sin}[c + dx])\,(a + i\, a\,\mathrm{Tan}[c + dx])^{5/2}} \mathrm{Sec}[c + dx]^2 (\mathrm{Cos}[dx] + i\,\mathrm{Sin}[dx])^3$$

$$\Bigg((A - 4 i B)\,\mathrm{Cos}[4dx]\left(-\frac{\mathrm{Cos}[c]}{60} + \frac{1}{60} i\,\mathrm{Sin}[c]\right) + (3A - 2iB)\,\mathrm{Cos}[2dx]\left(\frac{\mathrm{Cos}[c]}{20} + \frac{1}{20} i\,\mathrm{Sin}[c]\right) + (17A - 23iB)$$

$$\left(\frac{1}{120}\mathrm{Cos}[3c] + \frac{1}{120} i\,\mathrm{Sin}[3c]\right) + (A + iB)\,\mathrm{Cos}[6dx]\left(-\frac{1}{40}\mathrm{Cos}[3c] + \frac{1}{40} i\,\mathrm{Sin}[3c]\right) + (3A - 2iB)\left(-\frac{1}{20} i\,\mathrm{Cos}[c] + \frac{\mathrm{Sin}[c]}{20}\right)\mathrm{Sin}[2dx] +$$

$$(iA + 4B)\left(\frac{\mathrm{Cos}[c]}{60} - \frac{1}{60} i\,\mathrm{Sin}[c]\right)\mathrm{Sin}[4dx] + (A + iB)\left(\frac{1}{40} i\,\mathrm{Cos}[3c] + \frac{1}{40}\mathrm{Sin}[3c]\right)\mathrm{Sin}[6dx]\Bigg) \sqrt{\mathrm{Tan}[c + dx]}\, (A + B\,\mathrm{Tan}[c + dx])$$

- **Problem 192: Result more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\mathrm{Tan}[c + dx]}\,(A + B\,\mathrm{Tan}[c + dx])}{(a + i\, a\,\mathrm{Tan}[c + dx])^{5/2}}\, dx$$

Optimal (type 3, 196 leaves, 6 steps):

$$-\frac{\left(\frac{1}{8} + \frac{i}{8}\right)(A - iB)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a + i\, a\,\mathrm{Tan}[c+dx]}}\right]}{a^{5/2}\, d} + \frac{(iA - B)\sqrt{\mathrm{Tan}[c + dx]}}{5d\,(a + i\, a\,\mathrm{Tan}[c + dx])^{5/2}} + \frac{(3iA + 7B)\sqrt{\mathrm{Tan}[c + dx]}}{30\, a\, d\,(a + i\, a\,\mathrm{Tan}[c + dx])^{3/2}} - \frac{(3iA - 13B)\sqrt{\mathrm{Tan}[c + dx]}}{60\, a^2\, d\sqrt{a + i\, a\,\mathrm{Tan}[c + dx]}}$$

Result (type 3, 525 leaves):

$$-\left(\mathrm{i}\,(A-\mathrm{i}\,B)\,e^{3\,\mathrm{i}\,c}\,\sqrt{e^{\mathrm{i}\,d\,x}}\,\sqrt{-\frac{\mathrm{i}\,\left(-1+e^{2\,\mathrm{i}\,(c+d\,x)}\right)}{1+e^{2\,\mathrm{i}\,(c+d\,x)}}}\,\mathrm{Log}\left[e^{\mathrm{i}\,(c+d\,x)}+\sqrt{-1+e^{2\,\mathrm{i}\,(c+d\,x)}}\right]\,\mathrm{Sec}[c+d\,x]^{3/2}\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$

$$\left(4\,\sqrt{2}\,d\,\sqrt{-1+e^{2\,\mathrm{i}\,(c+d\,x)}}\,\sqrt{\frac{e^{\mathrm{i}\,(c+d\,x)}}{1+e^{2\,\mathrm{i}\,(c+d\,x)}}}\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{5/2}}\,\mathrm{Sec}[c+d\,x]^2\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])^3$$

$$\left((2\,\mathrm{i}\,A+3\,B)\,\mathrm{Cos}[2\,d\,x]\,\left(\frac{\mathrm{Cos}[c]}{20}+\frac{1}{20}\,\mathrm{i}\,\mathrm{Sin}[c]\right)+(6\,A+\mathrm{i}\,B)\,\mathrm{Cos}[4\,d\,x]\,\left(\frac{1}{60}\,\mathrm{i}\,\mathrm{Cos}[c]+\frac{\mathrm{Sin}[c]}{60}\right)+(3\,\mathrm{i}\,A+17\,B)\right.$$

$$\left(\frac{1}{120}\,\mathrm{Cos}[3\,c]+\frac{1}{120}\,\mathrm{i}\,\mathrm{Sin}[3\,c]\right)+(A+\mathrm{i}\,B)\,\mathrm{Cos}[6\,d\,x]\,\left(\frac{1}{40}\,\mathrm{i}\,\mathrm{Cos}[3\,c]+\frac{1}{40}\,\mathrm{Sin}[3\,c]\right)+(2\,A-3\,\mathrm{i}\,B)\,\left(\frac{\mathrm{Cos}[c]}{20}+\frac{1}{20}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\,\mathrm{Sin}[2\,d\,x]+$$

$$\left.(6\,A+\mathrm{i}\,B)\,\left(\frac{\mathrm{Cos}[c]}{60}-\frac{1}{60}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\,\mathrm{Sin}[4\,d\,x]+(A+\mathrm{i}\,B)\,\left(\frac{1}{40}\,\mathrm{Cos}[3\,c]-\frac{1}{40}\,\mathrm{i}\,\mathrm{Sin}[3\,c]\right)\,\mathrm{Sin}[6\,d\,x]\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])$$

- **Problem 193: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 194 leaves, 6 steps):

$$\frac{\left(\frac{1}{8}-\frac{\mathrm{i}}{8}\right)\,(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{(1+\mathrm{i})\,\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}\right]}{a^{5/2}\,d}+\frac{(A+\mathrm{i}\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{5\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{5/2}}+\frac{(13\,A+3\,\mathrm{i}\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{30\,a\,d\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{(67\,A-3\,\mathrm{i}\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{60\,a^2\,d\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 523 leaves):

$$\left((A-i B)\, e^{3 i c} \sqrt{e^{i d x}} \sqrt{-\frac{i\left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\, \text{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right] \text{Sec}[c+d x]^{3/2} (\text{Cos}[d x]+i \text{Sin}[d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/$$

$$\left(4 \sqrt{2}\, d \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\, (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^{5/2}\right)+$$

$$\frac{1}{d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+i a \text{Tan}[c+d x])^{5/2}} \text{Sec}[c+d x]^2 (\text{Cos}[d x]+i \text{Sin}[d x])^3$$

$$\left((11 A+6 i B) \text{Cos}[4 d x] \left(\frac{\text{Cos}[c]}{60}-\frac{1}{60} i \text{Sin}[c]\right)+(17 A+2 i B) \text{Cos}[2 d x] \left(\frac{\text{Cos}[c]}{20}+\frac{1}{20} i \text{Sin}[c]\right)+(83 A+3 i B)\right.$$

$$\left(\frac{1}{120} \text{Cos}[3 c]+\frac{1}{120} i \text{Sin}[3 c]\right)+(A+i B) \text{Cos}[6 d x] \left(\frac{1}{40} \text{Cos}[3 c]-\frac{1}{40} i \text{Sin}[3 c]\right)+(-17 i A+2 B) \left(\frac{\text{Cos}[c]}{20}+\frac{1}{20} i \text{Sin}[c]\right) \text{Sin}[2 d x]+$$

$$\left.(-11 i A+6 B) \left(\frac{\text{Cos}[c]}{60}-\frac{1}{60} i \text{Sin}[c]\right) \text{Sin}[4 d x]+(-i A+B) \left(\frac{1}{40} \text{Cos}[3 c]-\frac{1}{40} i \text{Sin}[3 c]\right) \text{Sin}[6 d x]\right) \sqrt{\text{Tan}[c+d x]}\, (A+B \text{Tan}[c+d x])$$

- **Problem 194: Result more than twice size of optimal antiderivative.**

$$\int \frac{A+B \text{Tan}[c+d x]}{\text{Tan}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^{5/2}}\, dx$$

Optimal (type 3, 240 leaves, 7 steps) :

$$\frac{\left(\frac{1}{8}+\frac{i}{8}\right) (A-i B) \text{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right]}{a^{5/2} d}+\frac{A+i B}{5 d \sqrt{\text{Tan}[c+d x]} (a+i a \text{Tan}[c+d x])^{5/2}}+$$

$$\frac{17 A+7 i B}{30 a d \sqrt{\text{Tan}[c+d x]} (a+i a \text{Tan}[c+d x])^{3/2}}+\frac{151 A+41 i B}{60 a^2 d \sqrt{\text{Tan}[c+d x]} \sqrt{a+i a \text{Tan}[c+d x]}}-\frac{(317 A+67 i B) \sqrt{a+i a \text{Tan}[c+d x]}}{60 a^3 d \sqrt{\text{Tan}[c+d x]}}$$

Result (type 3, 603 leaves) :

$$\left((i A+B)\, e^{3 i c} \sqrt{e^{i d x}} \sqrt{-\frac{i \left(-1+e^{2 i (c+d x)}\right)}{1+e^{2 i (c+d x)}}}\ \mathrm{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right] \mathrm{Sec}[c+d x]^{3/2} (\mathrm{Cos}[d x]+i\, \mathrm{Sin}[d x])^{5/2} (A+B\, \mathrm{Tan}[c+d x])\right) \Big/$$

$$\left(4 \sqrt{2}\, d \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\ (A\, \mathrm{Cos}[c+d x]+B\, \mathrm{Sin}[c+d x]) (a+i a\, \mathrm{Tan}[c+d x])^{5/2}\right)+$$

$$\frac{1}{d (A\, \mathrm{Cos}[c+d x]+B\, \mathrm{Sin}[c+d x]) (a+i a\, \mathrm{Tan}[c+d x])^{5/2}}$$

$$\mathrm{Sec}[c+d x]^2 (\mathrm{Cos}[d x]+i\, \mathrm{Sin}[d x])^3 \left((-16 i A+11 B)\, \mathrm{Cos}[4 d x] \left(\frac{\mathrm{Cos}[c]}{60}-\frac{1}{60} i\, \mathrm{Sin}[c]\right)+\right.$$

$$(-42 i A+17 B)\, \mathrm{Cos}[2 d x] \left(\frac{\mathrm{Cos}[c]}{20}+\frac{1}{20} i\, \mathrm{Sin}[c]\right)+\mathrm{Csc}[c] (240 A\, \mathrm{Cos}[c]+223 i A\, \mathrm{Sin}[c]-83 B\, \mathrm{Sin}[c]) \left(-\frac{1}{120} \mathrm{Cos}[3 c]-\frac{1}{120} i\, \mathrm{Sin}[3 c]\right)+$$

$$(-i A+B)\, \mathrm{Cos}[6 d x] \left(\frac{1}{40} \mathrm{Cos}[3 c]-\frac{1}{40} i\, \mathrm{Sin}[3 c]\right)+(42 A+17 i B) \left(-\frac{\mathrm{Cos}[c]}{20}-\frac{1}{20} i\, \mathrm{Sin}[c]\right) \mathrm{Sin}[2 d x]+$$

$$(16 A+11 i B) \left(-\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60} i\, \mathrm{Sin}[c]\right) \mathrm{Sin}[4 d x]+(A+i B) \left(-\frac{1}{40} \mathrm{Cos}[3 c]+\frac{1}{40} i\, \mathrm{Sin}[3 c]\right) \mathrm{Sin}[6 d x]+$$

$$\left.2\, \mathrm{Csc}[c]\, \mathrm{Csc}[c+d x] \left(\frac{1}{2} i A\, \mathrm{Cos}[3 c-d x]-\frac{1}{2} i A\, \mathrm{Cos}[3 c+d x]-\frac{1}{2} A\, \mathrm{Sin}[3 c-d x]+\frac{1}{2} A\, \mathrm{Sin}[3 c+d x]\right)\right) \sqrt{\mathrm{Tan}[c+d x]}\ (A+B\, \mathrm{Tan}[c+d x])$$

- **Problem 195: Result more than twice size of optimal antiderivative.**

$$\int \frac{A+B\, \mathrm{Tan}[c+d x]}{\mathrm{Tan}[c+d x]^{5/2} (a+i a\, \mathrm{Tan}[c+d x])^{5/2}}\, dx$$

Optimal (type 3, 286 leaves, 8 steps) :

$$\frac{\left(\frac{1}{8}+\frac{i}{8}\right) (i A+B)\, \mathrm{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i a\, \mathrm{Tan}[c+d x]}}\right]}{a^{5/2} d}+\frac{A+i B}{5 d\, \mathrm{Tan}[c+d x]^{3/2} (a+i a\, \mathrm{Tan}[c+d x])^{5/2}}+\frac{21 A+11 i B}{30 a d\, \mathrm{Tan}[c+d x]^{3/2} (a+i a\, \mathrm{Tan}[c+d x])^{3/2}}+$$

$$\frac{89 A+39 i B}{20 a^2 d\, \mathrm{Tan}[c+d x]^{3/2} \sqrt{a+i a\, \mathrm{Tan}[c+d x]}}-\frac{(361 A+151 i B) \sqrt{a+i a\, \mathrm{Tan}[c+d x]}}{60 a^3 d\, \mathrm{Tan}[c+d x]^{3/2}}+\frac{(707 i A-317 B) \sqrt{a+i a\, \mathrm{Tan}[c+d x]}}{60 a^3 d \sqrt{\mathrm{Tan}[c+d x]}}$$

Result (type 3, 701 leaves) :

$$\left((\mathrm{i} A+B)\, e^{-\mathrm{i}(-2c+dx)} \sqrt{e^{\mathrm{i} dx}} \sqrt{-1+e^{2\mathrm{i}(c+dx)}} \sqrt{\frac{e^{\mathrm{i}(c+dx)}}{1+e^{2\mathrm{i}(c+dx)}}} \operatorname{Log}\left[e^{\mathrm{i}(c+dx)}+\sqrt{-1+e^{2\mathrm{i}(c+dx)}}\right] \operatorname{Sec}[c+dx]^{3/2} (\operatorname{Cos}[dx]+\mathrm{i}\operatorname{Sin}[dx])^{5/2} (A+B\operatorname{Tan}[c+dx])\right) \Big/ \left(4\sqrt{2}\, d \sqrt{-\frac{\mathrm{i}\left(-1+e^{2\mathrm{i}(c+dx)}\right)}{1+e^{2\mathrm{i}(c+dx)}}} (A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx]) (a+\mathrm{i} a\operatorname{Tan}[c+dx])^{5/2}\right) +$$

$$\frac{1}{d (A\operatorname{Cos}[c+dx]+B\operatorname{Sin}[c+dx]) (a+\mathrm{i} a\operatorname{Tan}[c+dx])^{5/2}} \operatorname{Sec}[c+dx]^2 (\operatorname{Cos}[dx]+\mathrm{i}\operatorname{Sin}[dx])^3 \left((21A+16\mathrm{i}B)\operatorname{Cos}[4dx]\left(-\frac{\operatorname{Cos}[c]}{60}+\frac{1}{60}\mathrm{i}\operatorname{Sin}[c]\right)+(11A+6\mathrm{i}B)\operatorname{Cos}[2dx]\left(-\frac{7\operatorname{Cos}[c]}{20}-\frac{7}{20}\mathrm{i}\operatorname{Sin}[c]\right)+\right.$$

$$\mathrm{i}\operatorname{Csc}[c]\,(640A\operatorname{Cos}[c]+240\mathrm{i}B\operatorname{Cos}[c]+343\mathrm{i}A\operatorname{Sin}[c]-223B\operatorname{Sin}[c])\left(\frac{1}{120}\operatorname{Cos}[3c]+\frac{1}{120}\mathrm{i}\operatorname{Sin}[3c]\right)+$$

$$(A+\mathrm{i}B)\operatorname{Cos}[6dx]\left(-\frac{1}{40}\operatorname{Cos}[3c]+\frac{1}{40}\mathrm{i}\operatorname{Sin}[3c]\right)+\operatorname{Csc}[c+dx]^2\left(-\frac{2}{3}A\operatorname{Cos}[3c]-\frac{2}{3}\mathrm{i}A\operatorname{Sin}[3c]\right)+$$

$$(11A+6\mathrm{i}B)\left(\frac{7}{20}\mathrm{i}\operatorname{Cos}[c]-\frac{7\operatorname{Sin}[c]}{20}\right)\operatorname{Sin}[2dx]+(21A+16\mathrm{i}B)\left(\frac{1}{60}\mathrm{i}\operatorname{Cos}[c]+\frac{\operatorname{Sin}[c]}{60}\right)\operatorname{Sin}[4dx]+$$

$$(A+\mathrm{i}B)\left(\frac{1}{40}\mathrm{i}\operatorname{Cos}[3c]+\frac{1}{40}\operatorname{Sin}[3c]\right)\operatorname{Sin}[6dx]+\frac{2}{3}\operatorname{Csc}[c]\operatorname{Csc}[c+dx]\left(4A\operatorname{Cos}[3c-dx]+\frac{3}{2}\mathrm{i}B\operatorname{Cos}[3c-dx]-4A\operatorname{Cos}[3c+dx]-\right.$$

$$\left.\left.\frac{3}{2}\mathrm{i}B\operatorname{Cos}[3c+dx]+4\mathrm{i}A\operatorname{Sin}[3c-dx]-\frac{3}{2}B\operatorname{Sin}[3c-dx]-4\mathrm{i}A\operatorname{Sin}[3c+dx]+\frac{3}{2}B\operatorname{Sin}[3c+dx]\right)\right)\sqrt{\operatorname{Tan}[c+dx]}\,(A+B\operatorname{Tan}[c+dx])$$

- **Problem 196: Attempted integration timed out after 120 seconds.**

$$\int (a+\mathrm{i} a\operatorname{Tan}[c+dx])^{1/3} (A+B\operatorname{Tan}[c+dx])\, dx$$

Optimal (type 3, 201 leaves, 6 steps) :

$$-\frac{a^{1/3}(A-\mathrm{i}B)x}{2\times 2^{2/3}}-\frac{\sqrt{3}\,a^{1/3}(\mathrm{i}A+B)\operatorname{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+\mathrm{i} a\operatorname{Tan}[c+dx])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2^{2/3}d}+$$

$$\frac{a^{1/3}(\mathrm{i}A+B)\operatorname{Log}[\operatorname{Cos}[c+dx]]}{2\times 2^{2/3}d}+\frac{3a^{1/3}(\mathrm{i}A+B)\operatorname{Log}\left[2^{1/3}a^{1/3}-(a+\mathrm{i} a\operatorname{Tan}[c+dx])^{1/3}\right]}{2\times 2^{2/3}d}+\frac{3B(a+\mathrm{i} a\operatorname{Tan}[c+dx])^{1/3}}{d}$$

Result (type 1, 1 leaves) :

???

- **Problem 197: Result unnecessarily involves higher level functions.**

$$\int \operatorname{Tan}[c+dx]^2 (a+\mathrm{i} a\operatorname{Tan}[c+dx])^{2/3} (A+B\operatorname{Tan}[c+dx])\, dx$$

Optimal (type 3, 270 leaves, 8 steps) :

$$\frac{a^{2/3}(A-iB)x}{2\times 2^{1/3}}-\frac{\sqrt{3}\,a^{2/3}(iA+B)\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+ia\,\text{Tan}[c+dx])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2^{1/3}d}-$$
$$\frac{a^{2/3}(iA+B)\,\text{Log}[\text{Cos}[c+dx]]}{2\times 2^{1/3}d}-\frac{3a^{2/3}(iA+B)\,\text{Log}\left[2^{1/3}a^{1/3}-(a+ia\,\text{Tan}[c+dx])^{1/3}\right]}{2\times 2^{1/3}d}-$$
$$\frac{9B(a+ia\,\text{Tan}[c+dx])^{2/3}}{8d}+\frac{3B\,\text{Tan}[c+dx]^2(a+ia\,\text{Tan}[c+dx])^{2/3}}{8d}-\frac{3(4iA+B)(a+ia\,\text{Tan}[c+dx])^{5/3}}{20ad}$$

Result (type 5, 109 leaves) :

$$\frac{1}{40d}3(a+ia\,\text{Tan}[c+dx])^{2/3}$$
$$\left(-8iA-22B+10(iA+B)\left(1+e^{2i(c+dx)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2i(c+dx)}\right]+5B\,\text{Sec}[c+dx]^2+(8A-2iB)\,\text{Tan}[c+dx]\right)$$

Problem 198: Result unnecessarily involves higher level functions.

$$\int \text{Tan}[c+dx](a+ia\,\text{Tan}[c+dx])^{2/3}(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 232 leaves, 7 steps) :

$$\frac{a^{2/3}(iA+B)x}{2\times 2^{1/3}}+\frac{\sqrt{3}\,a^{2/3}(A-iB)\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+ia\,\text{Tan}[c+dx])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2^{1/3}d}+\frac{a^{2/3}(A-iB)\,\text{Log}[\text{Cos}[c+dx]]}{2\times 2^{1/3}d}+$$
$$\frac{3a^{2/3}(A-iB)\,\text{Log}\left[2^{1/3}a^{1/3}-(a+ia\,\text{Tan}[c+dx])^{1/3}\right]}{2\times 2^{1/3}d}+\frac{3A(a+ia\,\text{Tan}[c+dx])^{2/3}}{2d}-\frac{3iB(a+ia\,\text{Tan}[c+dx])^{5/3}}{5ad}$$

Result (type 5, 120 leaves) :

$$\left(3\left(e^{idx}\right)^{2/3}(a+ia\,\text{Tan}[c+dx])^{2/3}\left(10A-4iB-5(A-iB)\left(1+e^{2i(c+dx)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2i(c+dx)}\right]+4B\,\text{Tan}[c+dx]\right)\right)\Big/$$
$$\left(20d(\text{Cos}[dx]+i\,\text{Sin}[dx])^{2/3}\right)$$

Problem 199: Result unnecessarily involves higher level functions.

$$\int (a+ia\,\text{Tan}[c+dx])^{2/3}(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 202 leaves, 6 steps) :

$$-\frac{a^{2/3}(A-iB)x}{2\times 2^{1/3}}+\frac{\sqrt{3}\,a^{2/3}(iA+B)\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}(a+ia\,\text{Tan}[c+dx])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2^{1/3}d}+$$
$$\frac{a^{2/3}(iA+B)\,\text{Log}[\text{Cos}[c+dx]]}{2\times 2^{1/3}d}+\frac{3a^{2/3}(iA+B)\,\text{Log}\left[2^{1/3}a^{1/3}-(a+ia\,\text{Tan}[c+dx])^{1/3}\right]}{2\times 2^{1/3}d}+\frac{3B(a+ia\,\text{Tan}[c+dx])^{2/3}}{2d}$$

Result (type 5, 96 leaves) :

$$-\frac{3\left(\frac{a e^{2 i (c+d x)}}{1+e^{2 i (c+d x)}}\right)^{2/3}\left(-2 B+(i A+B)\left(1+e^{2 i (c+d x)}\right)^{2/3} \text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2 i (c+d x)}\right]\right)}{2\times 2^{1/3} d}$$

Problem 200: Unable to integrate problem.

$$\int \text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^{2/3} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 289 leaves, 11 steps):

$$-\frac{a^{2/3} (i A+B) x}{2\times 2^{1/3}}+\frac{\sqrt{3} a^{2/3} A \text{ArcTan}\left[\frac{a^{1/3}+2 (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{d}-\frac{\sqrt{3} a^{2/3} (A-i B) \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{1/3} d}-\frac{a^{2/3} (A-i B) \text{Log}[\text{Cos}[c+d x]]}{2\times 2^{1/3} d}-\frac{a^{2/3} A \text{Log}[\text{Tan}[c+d x]]}{2 d}+\frac{3 a^{2/3} A \text{Log}\left[a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2 d}-\frac{3 a^{2/3} (A-i B) \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2\times 2^{1/3} d}$$

Result (type 8, 36 leaves):

$$\int \text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^{2/3} (A+B \text{Tan}[c+d x]) \, dx$$

Problem 201: Unable to integrate problem.

$$\int \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^{2/3} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 342 leaves, 12 steps):

$$\frac{a^{2/3} (A-i B) x}{2\times 2^{1/3}}+\frac{a^{2/3} (2 i A+3 B) \text{ArcTan}\left[\frac{a^{1/3}+2 (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{\sqrt{3} d}-\frac{\sqrt{3} a^{2/3} (i A+B) \text{ArcTan}\left[\frac{a^{1/3}+2^{2/3} (a+i a \text{Tan}[c+d x])^{1/3}}{\sqrt{3} a^{1/3}}\right]}{2^{1/3} d}-\frac{a^{2/3} (i A+B) \text{Log}[\text{Cos}[c+d x]]}{2\times 2^{1/3} d}-\frac{a^{2/3} (2 i A+3 B) \text{Log}[\text{Tan}[c+d x]]}{6 d}+\frac{a^{2/3} (2 i A+3 B) \text{Log}\left[a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2 d}-\frac{3 a^{2/3} (i A+B) \text{Log}\left[2^{1/3} a^{1/3}-(a+i a \text{Tan}[c+d x])^{1/3}\right]}{2\times 2^{1/3} d}-\frac{A \text{Cot}[c+d x] (a+i a \text{Tan}[c+d x])^{2/3}}{d}$$

Result (type 8, 38 leaves):

$$\int \text{Cot}[c+d x]^2 (a+i a \text{Tan}[c+d x])^{2/3} (A+B \text{Tan}[c+d x]) \, dx$$

Problem 202: Result unnecessarily involves higher level functions.

$$\int \frac{A+B \text{Tan}[c+d x]}{(a+i a \text{Tan}[c+d x])^{1/3}} \, dx$$

Optimal (type 3, 213 leaves, 6 steps):

$$-\frac{(A-iB)\,x}{4\times 2^{1/3}\,a^{1/3}}+\frac{\sqrt{3}\,(iA+B)\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2\times 2^{1/3}\,a^{1/3}\,d}+\frac{(iA+B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\times 2^{1/3}\,a^{1/3}\,d}+\frac{3\,(iA+B)\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\times 2^{1/3}\,a^{1/3}\,d}+\frac{3\,(iA-B)}{2\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}$$

Result (type 5, 142 leaves) :

$$-\frac{1}{4\times 2^{1/3}\,a\,d}3\,i\,e^{-2\,i\,(c+d\,x)}\left(\frac{a\,e^{2\,i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^{2/3}\left(-2\,(A+iB)\left(1+e^{2\,i\,(c+d\,x)}\right)+(A-iB)\,e^{2\,i\,(c+d\,x)}\left(1+e^{2\,i\,(c+d\,x)}\right)^{2/3}\text{Hypergeometric2F1}\left[\frac{2}{3},\frac{2}{3},\frac{5}{3},-e^{2\,i\,(c+d\,x)}\right]\right)$$

Problem 203: Unable to integrate problem.

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}\,dx$$

Optimal (type 3, 213 leaves, 6 steps) :

$$-\frac{(A-iB)\,x}{4\times 2^{2/3}\,a^{2/3}}-\frac{\sqrt{3}\,(iA+B)\,\text{ArcTan}\left[\frac{a^{1/3}+2^{2/3}\,(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}}{\sqrt{3}\,a^{1/3}}\right]}{2\times 2^{2/3}\,a^{2/3}\,d}+\frac{(iA+B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\times 2^{2/3}\,a^{2/3}\,d}+\frac{3\,(iA+B)\,\text{Log}\left[2^{1/3}\,a^{1/3}-(a+i\,a\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\times 2^{2/3}\,a^{2/3}\,d}+\frac{3\,(iA-B)}{4\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}$$

Result (type 8, 30 leaves) :

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{(a+i\,a\,\text{Tan}[c+d\,x])^{2/3}}\,dx$$

Problem 204: Unable to integrate problem.

$$\int\text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 290 leaves, 7 steps) :

$$-\frac{2\,a^4\left(A\left(64+60\,m+19\,m^2+2\,m^3\right)-i\,B\left(67+60\,m+19\,m^2+2\,m^3\right)\right)\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)\,(2+m)\,(3+m)\,(4+m)}+\frac{8\,a^4\,(A-iB)\,\text{Hypergeometric2F1}[1,1+m,2+m,i\,\text{Tan}[c+d\,x]]\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}+\frac{i\,a\,B\,\text{Tan}[c+d\,x]^{1+m}\,(a+i\,a\,\text{Tan}[c+d\,x])^3}{d\,(4+m)}-\frac{(A\,(4+m)-i\,B\,(7+m))\,\text{Tan}[c+d\,x]^{1+m}\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)^2}{d\,(3+m)\,(4+m)}-\frac{2\left(A\,(4+m)^2-i\,B\left(19+8\,m+m^2\right)\right)\text{Tan}[c+d\,x]^{1+m}\left(a^4+i\,a^4\,\text{Tan}[c+d\,x]\right)}{d\,(2+m)\,(3+m)\,(4+m)}$$

Result (type 8, 36 leaves) :

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^4\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 205: Unable to integrate problem.

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 205 leaves, 6 steps):

$$-\frac{a^3\left(A\left(15+11\,m+2\,m^2\right)-i\,B\left(17+11\,m+2\,m^2\right)\right)\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)\,(2+m)\,(3+m)}+\frac{4\,a^3\,(A-i\,B)\,\text{Hypergeometric2F1}[1,\,1+m,\,2+m,\,i\,\text{Tan}[c+d\,x]]\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}+$$
$$\frac{i\,a\,B\,\text{Tan}[c+d\,x]^{1+m}\,(a+i\,a\,\text{Tan}[c+d\,x])^2}{d\,(3+m)}-\frac{(A\,(3+m)-i\,B\,(5+m))\,\text{Tan}[c+d\,x]^{1+m}\left(a^3+i\,a^3\,\text{Tan}[c+d\,x]\right)}{d\,(2+m)\,(3+m)}$$

Result (type 8, 36 leaves):

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 206: Unable to integrate problem.

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 132 leaves, 5 steps):

$$\frac{i\,a^2\,(B+(i\,A+B)\,(2+m))\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)\,(2+m)}+$$
$$\frac{2\,a^2\,(A-i\,B)\,\text{Hypergeometric2F1}[1,\,1+m,\,2+m,\,i\,\text{Tan}[c+d\,x]]\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}+\frac{i\,B\,\text{Tan}[c+d\,x]^{1+m}\left(a^2+i\,a^2\,\text{Tan}[c+d\,x]\right)}{d\,(2+m)}$$

Result (type 8, 36 leaves):

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 207: Unable to integrate problem.

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 70 leaves, 3 steps):

$$\frac{i\,a\,B\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}+\frac{a\,(A-i\,B)\,\text{Hypergeometric2F1}[1,\,1+m,\,2+m,\,i\,\text{Tan}[c+d\,x]]\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}$$

Result (type 8, 34 leaves):

$$\int \text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 208: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{a+i a \text{Tan}[c+d x]} \, dx$$

Optimal (type 5, 168 leaves, 6 steps):

$$\frac{(A (1-m)-i B (1+m)) \text{Hypergeometric2F1}\left[1, \frac{1+m}{2}, \frac{3+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{1+m}}{2 a d (1+m)}+$$
$$\frac{(i A-B) m \text{Hypergeometric2F1}\left[1, \frac{2+m}{2}, \frac{4+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{2+m}}{2 a d (2+m)}+\frac{(A+i B) \text{Tan}[c+d x]^{1+m}}{2 d (a+i a \text{Tan}[c+d x])}$$

Result (type 8, 36 leaves):

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{a+i a \text{Tan}[c+d x]} \, dx$$

Problem 209: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 5, 226 leaves, 7 steps):

$$\frac{(1-m) (A (1-m)-i B (1+m)) \text{Hypergeometric2F1}\left[1, \frac{1+m}{2}, \frac{3+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{1+m}}{4 a^2 d (1+m)}+\frac{(A (2-m)-i B m) \text{Tan}[c+d x]^{1+m}}{4 a^2 d (1+i \text{Tan}[c+d x])}+$$
$$\frac{m (i A (2-m)+B m) \text{Hypergeometric2F1}\left[1, \frac{2+m}{2}, \frac{4+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{2+m}}{4 a^2 d (2+m)}+\frac{(A+i B) \text{Tan}[c+d x]^{1+m}}{4 d (a+i a \text{Tan}[c+d x])^2}$$

Result (type 8, 36 leaves):

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^2} \, dx$$

Problem 210: Attempted integration timed out after 120 seconds.

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 5, 308 leaves, 8 steps):

$$-\frac{1}{24 a^3 d (1+m)}(1-m)\left(i B\left(3+m-2 m^2\right)-A\left(3-7 m+2 m^2\right)\right) \text{Hypergeometric2F1}\left[1, \frac{1+m}{2}, \frac{3+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{1+m}+\frac{(2-m) m (B+i A (5-2 m)+2 B m) \text{Hypergeometric2F1}\left[1, \frac{2+m}{2}, \frac{4+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{2+m}}{24 a^3 d (2+m)}+\frac{(A+i B) \text{Tan}[c+d x]^{1+m}}{6 d (a+i a \text{Tan}[c+d x])^3}+\frac{(i B (1-2 m)+A (7-2 m)) \text{Tan}[c+d x]^{1+m}}{24 a d (a+i a \text{Tan}[c+d x])^2}+\frac{(2-m) (A (5-2 m)-i (B+2 B m)) \text{Tan}[c+d x]^{1+m}}{24 d \left(a^3+i a^3 \text{Tan}[c+d x]\right)}$$

Result (type 1, 1 leaves) :

???

- **Problem 211: Attempted integration timed out after 120 seconds.**

$$\int \frac{\text{Tan}[c+d x]^m (A+B \text{Tan}[c+d x])}{(a+i a \text{Tan}[c+d x])^4} \, dx$$

Optimal (type 5, 386 leaves, 9 steps) :

$$-\frac{1}{48 a^4 d (1+m)}\left(3-4 m+m^2\right)\left(i B\left(1-m^2\right)-A\left(1-4 m+m^2\right)\right) \text{Hypergeometric2F1}\left[1, \frac{1+m}{2}, \frac{3+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{1+m}-\frac{\left(i B\left(1+3 m-m^2\right)-A\left(13-7 m+m^2\right)\right) \text{Tan}[c+d x]^{1+m}}{48 a^4 d (1+i \text{Tan}[c+d x])^2}-\frac{(2-m)\left(i B\left(2+2 m-m^2\right)-A\left(8-6 m+m^2\right)\right) \text{Tan}[c+d x]^{1+m}}{48 a^4 d (1+i \text{Tan}[c+d x])}+\frac{1}{48 a^4 d (2+m)}(2-m) m\left(B\left(2+2 m-m^2\right)+i A\left(8-6 m+m^2\right)\right) \text{Hypergeometric2F1}\left[1, \frac{2+m}{2}, \frac{4+m}{2}, -\text{Tan}[c+d x]^2\right] \text{Tan}[c+d x]^{2+m}+\frac{(A+i B) \text{Tan}[c+d x]^{1+m}}{8 d (a+i a \text{Tan}[c+d x])^4}+\frac{(i B (1-m)+A (5-m)) \text{Tan}[c+d x]^{1+m}}{24 a d (a+i a \text{Tan}[c+d x])^3}$$

Result (type 1, 1 leaves) :

???

- **Problem 212: Unable to integrate problem.**

$$\int \text{Tan}[c+d x]^m (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 6, 316 leaves, 9 steps) :

$$\left(4\,a^3\,(A-i\,B)\,\text{AppellF1}\left[1+m,\,\frac{1}{2},\,1,\,2+m,\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\,\text{Tan}[c+d\,x]^{1+m}\right)\Big/\left(d\,(1+m)\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)+$$
$$\frac{1}{d\,(3+2\,m)\,(5+2\,m)}2\,a^2\,\left(2\,B\,\left(19+17\,m+4\,m^2\right)+i\,A\,\left(35+34\,m+8\,m^2\right)\right)$$
$$\text{Hypergeometric2F1}\left[\frac{1}{2},\,-m,\,\frac{3}{2},\,1+i\,\text{Tan}[c+d\,x]\right]\,(-i\,\text{Tan}[c+d\,x])^{-m}\,\text{Tan}[c+d\,x]^m\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,+$$
$$\frac{2\,a^2\,(2\,i\,B\,(4+m)-A\,(5+2\,m))\,\text{Tan}[c+d\,x]^{1+m}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\,(3+2\,m)\,(5+2\,m)}+\frac{2\,i\,a\,B\,\text{Tan}[c+d\,x]^{1+m}\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}{d\,(5+2\,m)}$$

Result (type 8, 38 leaves) :

$$\int\text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 213: Unable to integrate problem.

$$\int\text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 227 leaves, 8 steps) :

$$\left(2\,a^2\,(A-i\,B)\,\text{AppellF1}\left[1+m,\,\frac{1}{2},\,1,\,2+m,\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\,\text{Tan}[c+d\,x]^{1+m}\right)\Big/\left(d\,(1+m)\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)+$$
$$\frac{1}{d\,(3+2\,m)}2\,a\,(B+(i\,A+B)\,(3+2\,m))\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-m,\,\frac{3}{2},\,1+i\,\text{Tan}[c+d\,x]\right]\,(-i\,\text{Tan}[c+d\,x])^{-m}\,\text{Tan}[c+d\,x]^m\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,+$$
$$\frac{2\,i\,a\,B\,\text{Tan}[c+d\,x]^{1+m}\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{d\,(3+2\,m)}$$

Result (type 8, 38 leaves) :

$$\int\text{Tan}[c+d\,x]^m\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 214: Unable to integrate problem.

$$\int\text{Tan}[c+d\,x]^m\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 159 leaves, 7 steps) :

$$\left(a\,(A-i\,B)\,\text{AppellF1}\left[1+m,\,\frac{1}{2},\,1,\,2+m,\,-i\,\text{Tan}[c+d\,x],\,i\,\text{Tan}[c+d\,x]\right]\sqrt{1+i\,\text{Tan}[c+d\,x]}\,\,\text{Tan}[c+d\,x]^{1+m}\right)\Big/\left(d\,(1+m)\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\right)+$$
$$\frac{1}{d}2\,B\,\text{Hypergeometric2F1}\left[\frac{1}{2},\,-m,\,\frac{3}{2},\,1+i\,\text{Tan}[c+d\,x]\right]\,(-i\,\text{Tan}[c+d\,x])^{-m}\,\text{Tan}[c+d\,x]^m\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}$$

Result (type 8, 38 leaves) :

$$\int\text{Tan}[c+d\,x]^m\,\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}\,\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 215: Attempted integration timed out after 120 seconds.

$$\int \frac{\mathrm{Tan}[c+d x]^m\,(A+B\,\mathrm{Tan}[c+d x])}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}\,dx$$

Optimal (type 6, 214 leaves, 8 steps):

$$\frac{(A+i B)\,\mathrm{Tan}[c+d x]^{1+m}}{d\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}+\left((A-i B)\,\mathrm{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-i\,\mathrm{Tan}[c+d x],i\,\mathrm{Tan}[c+d x]\right]\sqrt{1+i\,\mathrm{Tan}[c+d x]}\,\mathrm{Tan}[c+d x]^{1+m}\right)\Big/\left(2 d\,(1+m)\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}\right)+\frac{1}{a d}(i A-B)\,(1+2 m)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},1+i\,\mathrm{Tan}[c+d x]\right](-i\,\mathrm{Tan}[c+d x])^{-m}\,\mathrm{Tan}[c+d x]^m\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}$$

Result (type 1, 1 leaves):

???

Problem 216: Unable to integrate problem.

$$\int \frac{\mathrm{Tan}[c+d x]^m\,(A+B\,\mathrm{Tan}[c+d x])}{(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}}\,dx$$

Optimal (type 6, 285 leaves, 9 steps):

$$\frac{(A+i B)\,\mathrm{Tan}[c+d x]^{1+m}}{3 d\,(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}}+\frac{(A\,(5-4 m)-i\,(B+4 B m))\,\mathrm{Tan}[c+d x]^{1+m}}{6 a d\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}+\left((A-i B)\,\mathrm{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-i\,\mathrm{Tan}[c+d x],i\,\mathrm{Tan}[c+d x]\right]\sqrt{1+i\,\mathrm{Tan}[c+d x]}\,\mathrm{Tan}[c+d x]^{1+m}\right)\Big/\left(4 a d\,(1+m)\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}\right)+\frac{1}{6 a^2 d}(1+2 m)\,(B+i A\,(5-4 m)+4 B m)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},1+i\,\mathrm{Tan}[c+d x]\right](-i\,\mathrm{Tan}[c+d x])^{-m}\,\mathrm{Tan}[c+d x]^m\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}$$

Result (type 8, 38 leaves):

$$\int \frac{\mathrm{Tan}[c+d x]^m\,(A+B\,\mathrm{Tan}[c+d x])}{(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}}\,dx$$

Problem 217: Unable to integrate problem.

$$\int \frac{\mathrm{Tan}[c+d x]^m\,(A+B\,\mathrm{Tan}[c+d x])}{(a+i\,a\,\mathrm{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 6, 363 leaves, 10 steps):

$$\frac{(A+iB)\,\mathrm{Tan}[c+dx]^{1+m}}{5d\,(a+ia\,\mathrm{Tan}[c+dx])^{5/2}}+\frac{(iB\,(1-4m)+A\,(11-4m))\,\mathrm{Tan}[c+dx]^{1+m}}{30ad\,(a+ia\,\mathrm{Tan}[c+dx])^{3/2}}-\frac{\left(iB\left(13+12m-16m^2\right)-A\left(37-52m+16m^2\right)\right)\mathrm{Tan}[c+dx]^{1+m}}{60a^2d\sqrt{a+ia\,\mathrm{Tan}[c+dx]}}+$$

$$\left((A-iB)\,\mathrm{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-i\,\mathrm{Tan}[c+dx],i\,\mathrm{Tan}[c+dx]\right]\sqrt{1+i\,\mathrm{Tan}[c+dx]}\,\mathrm{Tan}[c+dx]^{1+m}\right)\Big/$$

$$\left(8a^2d\,(1+m)\sqrt{a+ia\,\mathrm{Tan}[c+dx]}\right)+\frac{1}{60a^3d}(1+2m)\left(B\left(13+12m-16m^2\right)+iA\left(37-52m+16m^2\right)\right)$$

$$\mathrm{Hypergeometric2F1}\left[\frac{1}{2},-m,\frac{3}{2},1+i\,\mathrm{Tan}[c+dx]\right]\,(-i\,\mathrm{Tan}[c+dx])^{-m}\,\mathrm{Tan}[c+dx]^m\sqrt{a+ia\,\mathrm{Tan}[c+dx]}$$

Result (type 8, 38 leaves):

$$\int\frac{\mathrm{Tan}[c+dx]^m\,(A+B\,\mathrm{Tan}[c+dx])}{(a+ia\,\mathrm{Tan}[c+dx])^{5/2}}\,dx$$

Problem 218: Unable to integrate problem.

$$\int\mathrm{Tan}[c+dx]^m\,(a+ia\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Optimal (type 6, 167 leaves, 7 steps):

$$\frac{1}{d\,(1+m)}(A-iB)\,\mathrm{AppellF1}[1+m,1-n,1,2+m,-i\,\mathrm{Tan}[c+dx],i\,\mathrm{Tan}[c+dx]]\,(1+i\,\mathrm{Tan}[c+dx])^{-n}\,\mathrm{Tan}[c+dx]^{1+m}\,(a+ia\,\mathrm{Tan}[c+dx])^n+$$

$$\frac{1}{d\,(1+m)}iB\,\mathrm{Hypergeometric2F1}[1+m,1-n,2+m,-i\,\mathrm{Tan}[c+dx]]\,(1+i\,\mathrm{Tan}[c+dx])^{-n}\,\mathrm{Tan}[c+dx]^{1+m}\,(a+ia\,\mathrm{Tan}[c+dx])^n$$

Result (type 8, 36 leaves):

$$\int\mathrm{Tan}[c+dx]^m\,(a+ia\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Problem 219: Unable to integrate problem.

$$\int\mathrm{Tan}[c+dx]^3\,(a+ia\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Optimal (type 5, 245 leaves, 6 steps):

$$\frac{2\,(iBn-A\,(3+n))\,(a+ia\,\mathrm{Tan}[c+dx])^n}{dn\,(2+n)\,(3+n)}+$$

$$\frac{(A-iB)\,\mathrm{Hypergeometric2F1}\left[1,n,1+n,\frac{1}{2}(1+i\,\mathrm{Tan}[c+dx])\right](a+ia\,\mathrm{Tan}[c+dx])^n}{2dn}-\frac{(iBn-A\,(3+n))\,\mathrm{Tan}[c+dx]^2\,(a+ia\,\mathrm{Tan}[c+dx])^n}{d\,(2+n)\,(3+n)}+$$

$$\frac{B\,\mathrm{Tan}[c+dx]^3\,(a+ia\,\mathrm{Tan}[c+dx])^n}{d\,(3+n)}-\frac{\left(An\,(3+n)-iB\left(6+3n+n^2\right)\right)(a+ia\,\mathrm{Tan}[c+dx])^{1+n}}{ad\,(1+n)\,(2+n)\,(3+n)}$$

Result (type 8, 36 leaves):

$$\int \text{Tan}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

- **Problem 220: Unable to integrate problem.**

$$\int \text{Tan}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 164 leaves, 5 steps):

$$-\frac{2\,B\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,n\,(2+n)}+\frac{(i\,A+B)\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{2\,d\,n}+\frac{B\,\text{Tan}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,(2+n)}-\frac{(B\,n+i\,A\,(2+n))\,(a+i\,a\,\text{Tan}[c+d\,x])^{1+n}}{a\,d\,(1+n)\,(2+n)}$$

Result (type 8, 36 leaves):

$$\int \text{Tan}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

- **Problem 221: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 111 leaves, 4 steps):

$$\frac{A\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,n}-\frac{(A-i\,B)\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{2\,d\,n}-\frac{i\,B\,(a+i\,a\,\text{Tan}[c+d\,x])^{1+n}}{a\,d\,(1+n)}$$

Result (type 5, 295 leaves):

$$\left(2^{-1+n}\,e^{-2\,i\,d\,n\,x}\,\left(e^{i\,d\,x}\right)^n\,\left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^n\,\left(-\frac{2\,i\,B\,e^{2\,i\,(c+d\,x+d\,n\,x)}}{\left(1+e^{2\,i\,(c+d\,x)}\right)\,(1+n)}+\frac{(A+i\,B)\,e^{2\,i\,d\,n\,x}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^n\,\text{Hypergeometric2F1}\left[n,\,2+n,\,1+n,\,-e^{2\,i\,(c+d\,x)}\right]}{n}-\frac{(A-i\,B)\,e^{2\,i\,(2\,c+d\,(2+n)\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^n\,\text{Hypergeometric2F1}\left[2+n,\,2+n,\,3+n,\,-e^{2\,i\,(c+d\,x)}\right]}{2+n}\right)\,\text{Sec}[c+d\,x]^{-1-n}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\,(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))$$

- **Problem 222: Result more than twice size of optimal antiderivative.**

$$\int (a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 78 leaves, 3 steps):

$$\frac{B\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,n}-\frac{(i\,A+B)\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{2\,d\,n}$$

Result (type 5, 171 leaves):

$$\frac{1}{d\,n\,(1+n)} 2^{-1+n} \left(e^{i\,d\,x}\right)^n \left(\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}\right)^n \left((-i\,A+B)\,(1+n) - i\,(A-i\,B)\,e^{2\,i\,(c+d\,x)}\,\left(1+e^{2\,i\,(c+d\,x)}\right)^n n\,\text{Hypergeometric2F1}\left[1+n,\,1+n,\,2+n,\,-e^{2\,i\,(c+d\,x)}\right]\right) \text{Sec}[c+d\,x]^{-n}\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Problem 223: Unable to integrate problem.

$$\int \text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 97 leaves, 5 steps):

$$\frac{(A-i\,B)\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{2\,d\,n} - \frac{A\,\text{Hypergeometric2F1}[1,\,n,\,1+n,\,1+i\,\text{Tan}[c+d\,x]]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,n}$$

Result (type 8, 34 leaves):

$$\int \text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 224: Unable to integrate problem.

$$\int \text{Cot}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 131 leaves, 6 steps):

$$-\frac{A\,\text{Cot}[c+d\,x]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d} + \frac{(i\,A+B)\,\text{Hypergeometric2F1}\left[1,\,n,\,1+n,\,\frac{1}{2}\,(1+i\,\text{Tan}[c+d\,x])\right]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{2\,d\,n} - \frac{(B+i\,A\,n)\,\text{Hypergeometric2F1}[1,\,n,\,1+n,\,1+i\,\text{Tan}[c+d\,x]]\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,n}$$

Result (type 8, 36 leaves):

$$\int \text{Cot}[c+d\,x]^2\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 225: Unable to integrate problem.

$$\int \text{Cot}[c+d\,x]^3\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 185 leaves, 7 steps):

$$-\frac{(2B+\mathrm{i}An)\,\mathrm{Cot}[c+dx]\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{2d}-\frac{A\,\mathrm{Cot}[c+dx]^2\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{2d}-$$
$$\frac{(A-\mathrm{i}B)\,\mathrm{Hypergeometric2F1}\left[1,n,1+n,\frac{1}{2}(1+\mathrm{i}\,\mathrm{Tan}[c+dx])\right](a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{2dn}-$$
$$\frac{\left(2\mathrm{i}Bn-A\left(2-n+n^2\right)\right)\mathrm{Hypergeometric2F1}[1,n,1+n,1+\mathrm{i}\,\mathrm{Tan}[c+dx]]\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{2dn}$$

Result (type 8, 36 leaves) :

$$\int \mathrm{Cot}[c+dx]^3\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Problem 226: Unable to integrate problem.

$$\int \mathrm{Tan}[c+dx]^{5/2}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Optimal (type 6, 383 leaves, 11 steps) :

$$-\frac{2\left(2\mathrm{i}An(5+2n)+B\left(15+10n+4n^2\right)\right)\sqrt{\mathrm{Tan}[c+dx]}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{d(1+2n)(3+2n)(5+2n)}+\frac{1}{d}$$
$$2(\mathrm{i}A+B)\,\mathrm{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-\mathrm{i}\,\mathrm{Tan}[c+dx],\mathrm{i}\,\mathrm{Tan}[c+dx]\right](1+\mathrm{i}\,\mathrm{Tan}[c+dx])^{-n}\sqrt{\mathrm{Tan}[c+dx]}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n-$$
$$\Bigg(2\left(4Bn\left(9+8n+2n^2\right)+\mathrm{i}A\left(15+36n+32n^2+8n^3\right)\right)\mathrm{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-\mathrm{i}\,\mathrm{Tan}[c+dx]\right]$$
$$(1+\mathrm{i}\,\mathrm{Tan}[c+dx])^{-n}\sqrt{\mathrm{Tan}[c+dx]}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n\Bigg)\Big/\,(d(1+2n)(3+2n)(5+2n))-$$
$$\frac{2(2\mathrm{i}Bn-A(5+2n))\,\mathrm{Tan}[c+dx]^{3/2}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{d(3+2n)(5+2n)}+\frac{2B\,\mathrm{Tan}[c+dx]^{5/2}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n}{d(5+2n)}$$

Result (type 8, 38 leaves) :

$$\int \mathrm{Tan}[c+dx]^{5/2}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Problem 227: Unable to integrate problem.

$$\int \mathrm{Tan}[c+dx]^{3/2}\,(a+\mathrm{i}a\,\mathrm{Tan}[c+dx])^n\,(A+B\,\mathrm{Tan}[c+dx])\,dx$$

Optimal (type 6, 291 leaves, 10 steps) :

$$-\frac{2\,(2\,i\,B\,n-A\,(3+2\,n))\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(1+2\,n)\,(3+2\,n)}-\frac{1}{d}$$
$$2\,(A-i\,B)\,\mathrm{AppellF1}\left[\frac{1}{2},\,1-n,\,1,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n+$$
$$\frac{1}{d\,(1+2\,n)\,(3+2\,n)}2\,\left(2\,A\,n\,(3+2\,n)-i\,B\,\left(3+6\,n+4\,n^2\right)\right)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,1-n,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x]\right]$$
$$(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n+\frac{2\,B\,\mathrm{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(3+2\,n)}$$

Result (type 8, 38 leaves) :

$$\int \mathrm{Tan}[c+d\,x]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 228: Unable to integrate problem.

$$\int \sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 215 leaves, 9 steps) :

$$\frac{2\,B\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(1+2\,n)}-\frac{1}{d}$$
$$2\,(i\,A+B)\,\mathrm{AppellF1}\left[\frac{1}{2},\,1-n,\,1,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n+\frac{1}{d\,(1+2\,n)}$$
$$2\,(2\,B\,n+i\,A\,(1+2\,n))\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,1-n,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves) :

$$\int \sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 229: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 158 leaves, 8 steps) :

$$\frac{1}{d}2\,(A-i\,B)\,\mathrm{AppellF1}\left[\frac{1}{2},\,1-n,\,1,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n+$$
$$\frac{1}{d}2\,i\,B\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,1-n,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves) :

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{\mathrm{Tan}[c+d\,x]}}\,dx$$

Problem 230: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 6, 194 leaves, 9 steps):

$$-\frac{2\,A\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,\sqrt{\mathrm{Tan}[c+d\,x]}}+\frac{1}{d}2\,(i\,A+B)\,\mathrm{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\mathrm{Tan}[c+d\,x],i\,\mathrm{Tan}[c+d\,x]\right](1+i\,\mathrm{Tan}[c+d\,x])^{-n}\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n-\frac{1}{d}2\,i\,A\,(1-2\,n)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-i\,\mathrm{Tan}[c+d\,x]\right](1+i\,\mathrm{Tan}[c+d\,x])^{-n}\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves):

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{3/2}}\,dx$$

Problem 231: Unable to integrate problem.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 6, 247 leaves, 10 steps):

$$-\frac{2\,A\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{3\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}-\frac{2\,(3\,B+2\,i\,A\,n)\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{3\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}-\frac{1}{d}2\,(A-i\,B)\,\mathrm{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\mathrm{Tan}[c+d\,x],i\,\mathrm{Tan}[c+d\,x]\right](1+i\,\mathrm{Tan}[c+d\,x])^{-n}\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n-\frac{1}{3\,d}2\,(1-2\,n)\,(3\,i\,B-2\,A\,n)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-i\,\mathrm{Tan}[c+d\,x]\right](1+i\,\mathrm{Tan}[c+d\,x])^{-n}\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves):

$$\int \frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{5/2}}\,dx$$

Problem 240: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 148 leaves, 5 steps):

$$-\left(a^2 A-A b^2-2 a b B\right) x+\frac{\left(2 a A b+a^2 B-b^2 B\right) \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{b (A b+a B) \operatorname{Tan}[c+d x]}{d}-\frac{B (a+b \operatorname{Tan}[c+d x])^2}{2 d}+\frac{(4 A b-a B) (a+b \operatorname{Tan}[c+d x])^3}{12 b^2 d}+\frac{B \operatorname{Tan}[c+d x] (a+b \operatorname{Tan}[c+d x])^3}{4 b d}$$

Result (type 3, 560 leaves) :

$$\frac{\left(2 a A b+a^2 B-2 b^2 B\right) \operatorname{Cos}[c+d x] (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}-\frac{\left(a^2 A-A b^2-2 a b B\right) (c+d x) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{\left(2 a A b+a^2 B-b^2 B\right) \operatorname{Cos}[c+d x]^3 \operatorname{Log}[\operatorname{Cos}[c+d x]] (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{b^2 B \operatorname{Sec}[c+d x] (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])}{4 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\left(\operatorname{Cos}[c+d x]^2 \left(3 a^2 A \operatorname{Sin}[c+d x]-4 A b^2 \operatorname{Sin}[c+d x]-8 a b B \operatorname{Sin}[c+d x]\right) (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])\right) \Big/ \left(3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+\frac{\left(A b^2 \operatorname{Sin}[c+d x]+2 a b B \operatorname{Sin}[c+d x]\right) (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])}{3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}$$

Problem 247: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 151 leaves, 6 steps) :

$$\left(2 a A b+a^2 B-b^2 B\right) x-\frac{\left(b^2 B-a (2 A b+a B)\right) \operatorname{Cot}[c+d x]}{d}+\frac{\left(a^2 A-A b^2-2 a b B\right) \operatorname{Cot}[c+d x]^2}{2 d}-\frac{a (2 A b+a B) \operatorname{Cot}[c+d x]^3}{3 d}-\frac{a^2 A \operatorname{Cot}[c+d x]^4}{4 d}+\frac{\left(a^2 A-A b^2-2 a b B\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}$$

Result (type 3, 561 leaves) :

$$\frac{\left(-2 a A b \,\text{Cos}[c+d x]-a^2 B \,\text{Cos}[c+d x]\right) (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x])}{3 d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}-$$

$$\frac{a^2 A (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]}{4 d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+\frac{\left(2 a^2 A-A b^2-2 a b B\right) (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x]) \,\text{Sin}[c+d x]}{2 d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\left(\left(8 a A b \,\text{Cos}[c+d x]+4 a^2 B \,\text{Cos}[c+d x]-3 b^2 B \,\text{Cos}[c+d x]\right) (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x]) \,\text{Sin}[c+d x]^2\right) /$$
$$\left(3 d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)+$$

$$\frac{\left(2 a A b+a^2 B-b^2 B\right) (c+d x) (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x]) \,\text{Sin}[c+d x]^3}{d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\frac{\left(a^2 A-A b^2-2 a b B\right) (b+a \,\text{Cot}[c+d x])^2 (B+A \,\text{Cot}[c+d x]) \,\text{Log}[\text{Sin}[c+d x]] \,\text{Sin}[c+d x]^3}{d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}$$

Problem 248: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^2 (a+b \,\text{Tan}[c+d x])^3 (A+B \,\text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 201 leaves, 6 steps):

$$-\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) x+\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \,\text{Log}[\text{Cos}[c+d x]]}{d}-\frac{b \left(2 a A b+a^2 B-b^2 B\right) \,\text{Tan}[c+d x]}{d}-$$
$$\frac{(A b+a B) (a+b \,\text{Tan}[c+d x])^2}{2 d}-\frac{B (a+b \,\text{Tan}[c+d x])^3}{3 d}+\frac{(5 A b-a B) (a+b \,\text{Tan}[c+d x])^4}{20 b^2 d}+\frac{B \,\text{Tan}[c+d x] (a+b \,\text{Tan}[c+d x])^4}{5 b d}$$

Result (type 3, 680 leaves):

$$\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \,\text{Cos}[c+d x]^4 \,\text{Log}[\text{Cos}[c+d x]] (a+b \,\text{Tan}[c+d x])^3 (A+B \,\text{Tan}[c+d x])}{d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\frac{1}{240 d (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}$$
$$\text{Sec}[c+d x] \left(270 a^2 A b \,\text{Cos}[c+d x]-120 A b^3 \,\text{Cos}[c+d x]+90 a^3 B \,\text{Cos}[c+d x]-360 a b^2 B \,\text{Cos}[c+d x]-150 a^3 A (c+d x) \,\text{Cos}[c+d x]+\right.$$
$$450 a A b^2 (c+d x) \,\text{Cos}[c+d x]+450 a^2 b B (c+d x) \,\text{Cos}[c+d x]-150 b^3 B (c+d x) \,\text{Cos}[c+d x]+90 a^2 A b \,\text{Cos}[3 (c+d x)]-$$
$$60 A b^3 \,\text{Cos}[3 (c+d x)]+30 a^3 B \,\text{Cos}[3 (c+d x)]-180 a b^2 B \,\text{Cos}[3 (c+d x)]-75 a^3 A (c+d x) \,\text{Cos}[3 (c+d x)]+$$
$$225 a A b^2 (c+d x) \,\text{Cos}[3 (c+d x)]+225 a^2 b B (c+d x) \,\text{Cos}[3 (c+d x)]-75 b^3 B (c+d x) \,\text{Cos}[3 (c+d x)]-$$
$$15 a^3 A (c+d x) \,\text{Cos}[5 (c+d x)]+45 a A b^2 (c+d x) \,\text{Cos}[5 (c+d x)]+45 a^2 b B (c+d x) \,\text{Cos}[5 (c+d x)]-$$
$$15 b^3 B (c+d x) \,\text{Cos}[5 (c+d x)]+30 a^3 A \,\text{Sin}[c+d x]-60 a A b^2 \,\text{Sin}[c+d x]-60 a^2 b B \,\text{Sin}[c+d x]+50 b^3 B \,\text{Sin}[c+d x]+$$
$$45 a^3 A \,\text{Sin}[3 (c+d x)]-120 a A b^2 \,\text{Sin}[3 (c+d x)]-120 a^2 b B \,\text{Sin}[3 (c+d x)]+25 b^3 B \,\text{Sin}[3 (c+d x)]+15 a^3 A \,\text{Sin}[5 (c+d x)]-$$
$$\left.60 a A b^2 \,\text{Sin}[5 (c+d x)]-60 a^2 b B \,\text{Sin}[5 (c+d x)]+23 b^3 B \,\text{Sin}[5 (c+d x)]\right) (a+b \,\text{Tan}[c+d x])^3 (A+B \,\text{Tan}[c+d x])$$

Problem 249: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x] (a+b \,\text{Tan}[c+d x])^3 (A+B \,\text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 165 leaves, 5 steps):

$$-\left(3 a^2 A b - A b^3 + a^3 B - 3 a b^2 B\right) x - \frac{\left(a^3 A - 3 a A b^2 - 3 a^2 b B + b^3 B\right) \text{Log}[\text{Cos}[c+d x]]}{d} +$$
$$\frac{b \left(a^2 A - A b^2 - 2 a b B\right) \text{Tan}[c+d x]}{d} + \frac{(a A - b B) (a + b \text{Tan}[c+d x])^2}{2 d} + \frac{A (a + b \text{Tan}[c+d x])^3}{3 d} + \frac{B (a + b \text{Tan}[c+d x])^4}{4 b d}$$

Result (type 3, 600 leaves) :

$$\frac{b^3 B (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])}{4 d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])} -$$
$$\frac{b \left(-3 a A b - 3 a^2 B + 2 b^2 B\right) \text{Cos}[c+d x]^2 (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])}{2 d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])} -$$
$$\frac{\left(3 a^2 A b - A b^3 + a^3 B - 3 a b^2 B\right) (c + d x) \text{Cos}[c+d x]^4 (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])}{d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])} +$$
$$\frac{\left(-a^3 A + 3 a A b^2 + 3 a^2 b B - b^3 B\right) \text{Cos}[c+d x]^4 \text{Log}[\text{Cos}[c+d x]] (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])}{d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])} +$$
$$\left(\text{Cos}[c+d x]^3 \left(9 a^2 A b \text{Sin}[c+d x] - 4 A b^3 \text{Sin}[c+d x] + 3 a^3 B \text{Sin}[c+d x] - 12 a b^2 B \text{Sin}[c+d x]\right) (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])\right) \Big/$$
$$\left(3 d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])\right) +$$
$$\frac{\text{Cos}[c+d x] \left(A b^3 \text{Sin}[c+d x] + 3 a b^2 B \text{Sin}[c+d x]\right) (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x])}{3 d (a \text{Cos}[c+d x] + b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x] + B \text{Sin}[c+d x])}$$

- **Problem 254: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^4 (a + b \text{Tan}[c+d x])^3 (A + B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 154 leaves, 5 steps) :

$$\left(a^3 A - 3 a A b^2 - 3 a^2 b B + b^3 B\right) x + \frac{a \left(3 a^2 A - 8 A b^2 - 9 a b B\right) \text{Cot}[c+d x]}{3 d} -$$
$$\frac{a^2 (5 A b + 3 a B) \text{Cot}[c+d x]^2}{6 d} - \frac{\left(3 a^2 A b - A b^3 + a^3 B - 3 a b^2 B\right) \text{Log}[\text{Sin}[c+d x]]}{d} - \frac{a A \text{Cot}[c+d x]^3 (a + b \text{Tan}[c+d x])^2}{3 d}$$

Result (type 3, 491 leaves) :

$$-\frac{a^3 A \operatorname{Cos}[c+d x] (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]}{3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}-\frac{a^2 (3 A b+a B) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(\left(4 a^3 A \operatorname{Cos}[c+d x]-9 a A b^2 \operatorname{Cos}[c+d x]-9 a^2 b B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\frac{\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) (c+d x) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{\left(-3 a^2 A b+A b^3-a^3 B+3 a b^2 B\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^4}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}$$

Problem 255: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 191 leaves, 6 steps):

$$\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) x+\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \operatorname{Cot}[c+d x]}{d}+\frac{a \left(2 a^2 A-5 A b^2-6 a b B\right) \operatorname{Cot}[c+d x]^2}{4 d}-$$
$$\frac{a^2 (3 A b+2 a B) \operatorname{Cot}[c+d x]^3}{6 d}+\frac{\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{a A \operatorname{Cot}[c+d x]^4 (a+b \operatorname{Tan}[c+d x])^2}{4 d}$$

Result (type 3, 598 leaves):

$$-\frac{a^3 A (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x])}{4 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{\left(-3 a^2 A b \operatorname{Cos}[c+d x]-a^3 B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]}{3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{a \left(2 a^2 A-3 A b^2-3 a b B\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(\left(12 a^2 A b \operatorname{Cos}[c+d x]-3 A b^3 \operatorname{Cos}[c+d x]+4 a^3 B \operatorname{Cos}[c+d x]-9 a b^2 B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3\right) \Big/$$
$$\left(3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) (c+d x) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) (b+a \operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^4}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}$$

Problem 256: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^6 (a+b \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 233 leaves, 7 steps):

$$-\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) x-\frac{\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{Cot}[c+d x]}{d}+\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{Cot}[c+d x]^2}{2 d}+\frac{a \left(5 a^2 A-12 A b^2-15 a b B\right) \text{Cot}[c+d x]^3}{15 d}-\frac{a^2 (7 A b+5 a B) \text{Cot}[c+d x]^4}{20 d}+\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{Log}[\text{Sin}[c+d x]]}{d}-\frac{a A \text{Cot}[c+d x]^5 (a+b \text{Tan}[c+d x])^2}{5 d}$$

Result (type 3, 680 leaves):

$$\frac{\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) (b+a \text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \text{Log}[\text{Sin}[c+d x]] \text{Sin}[c+d x]^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}+\frac{1}{240 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}(b+a \text{Cot}[c+d x])^3 (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] \left(-50 a^3 A \text{Cos}[c+d x]+60 a A b^2 \text{Cos}[c+d x]+60 a^2 b B \text{Cos}[c+d x]-30 b^3 B \text{Cos}[c+d x]+25 a^3 A \text{Cos}[3 (c+d x)]-120 a A b^2 \text{Cos}[3 (c+d x)]-120 a^2 b B \text{Cos}[3 (c+d x)]+45 b^3 B \text{Cos}[3 (c+d x)]-23 a^3 A \text{Cos}[5 (c+d x)]+60 a A b^2 \text{Cos}[5 (c+d x)]+60 a^2 b B \text{Cos}[5 (c+d x)]-15 b^3 B \text{Cos}[5 (c+d x)]+360 a^2 A b \text{Sin}[c+d x]-90 A b^3 \text{Sin}[c+d x]+120 a^3 B \text{Sin}[c+d x]-270 a b^2 B \text{Sin}[c+d x]-150 a^3 A (c+d x) \text{Sin}[c+d x]+450 a A b^2 (c+d x) \text{Sin}[c+d x]+450 a^2 b B (c+d x) \text{Sin}[c+d x]-150 b^3 B (c+d x) \text{Sin}[c+d x]-180 a^2 A b \text{Sin}[3 (c+d x)]+30 A b^3 \text{Sin}[3 (c+d x)]-60 a^3 B \text{Sin}[3 (c+d x)]+90 a b^2 B \text{Sin}[3 (c+d x)]+75 a^3 A (c+d x) \text{Sin}[3 (c+d x)]-225 a A b^2 (c+d x) \text{Sin}[3 (c+d x)]-225 a^2 b B (c+d x) \text{Sin}[3 (c+d x)]+75 b^3 B (c+d x) \text{Sin}[3 (c+d x)]-15 a^3 A (c+d x) \text{Sin}[5 (c+d x)]+45 a A b^2 (c+d x) \text{Sin}[5 (c+d x)]+45 a^2 b B (c+d x) \text{Sin}[5 (c+d x)]-15 b^3 B (c+d x) \text{Sin}[5 (c+d x)]\right)$$

Problem 257: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^2 (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 263 leaves, 7 steps):

$$-\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) x+\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) \text{Log}[\text{Cos}[c+d x]]}{d}-\frac{b \left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{Tan}[c+d x]}{d}-\frac{\left(2 a A b+a^2 B-b^2 B\right) (a+b \text{Tan}[c+d x])^2}{2 d}-\frac{(A b+a B) (a+b \text{Tan}[c+d x])^3}{3 d}-\frac{B (a+b \text{Tan}[c+d x])^4}{4 d}+\frac{(6 A b-a B) (a+b \text{Tan}[c+d x])^5}{30 b^2 d}+\frac{B \text{Tan}[c+d x] (a+b \text{Tan}[c+d x])^5}{6 b d}$$

Result (type 3, 958 leaves):

$$\left(\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) \text{Cos}[c+d x]^5 \text{Log}[\text{Cos}[c+d x]] (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])\right) /$$
$$\left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+\frac{1}{480 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}$$
$$\text{Sec}[c+d x] \left(360 a^3 A b-480 a A b^3+90 a^4 B-720 a^2 b^2 B+170 b^4 B-150 a^4 A (c+d x)+900 a^2 A b^2 (c+d x)-150 A b^4 (c+d x)+\right.$$
$$600 a^3 b B (c+d x)-600 a b^3 B (c+d x)+480 a^3 A b \text{Cos}[2 (c+d x)]-720 a A b^3 \text{Cos}[2 (c+d x)]+120 a^4 B \text{Cos}[2 (c+d x)]-$$
$$1080 a^2 b^2 B \text{Cos}[2 (c+d x)]+180 b^4 B \text{Cos}[2 (c+d x)]-225 a^4 A (c+d x) \text{Cos}[2 (c+d x)]+1350 a^2 A b^2 (c+d x) \text{Cos}[2 (c+d x)]-$$
$$225 A b^4 (c+d x) \text{Cos}[2 (c+d x)]+900 a^3 b B (c+d x) \text{Cos}[2 (c+d x)]-900 a b^3 B (c+d x) \text{Cos}[2 (c+d x)]+120 a^3 A b \text{Cos}[4 (c+d x)]-$$
$$240 a A b^3 \text{Cos}[4 (c+d x)]+30 a^4 B \text{Cos}[4 (c+d x)]-360 a^2 b^2 B \text{Cos}[4 (c+d x)]+90 b^4 B \text{Cos}[4 (c+d x)]-90 a^4 A (c+d x) \text{Cos}[4 (c+d x)]+$$
$$540 a^2 A b^2 (c+d x) \text{Cos}[4 (c+d x)]-90 A b^4 (c+d x) \text{Cos}[4 (c+d x)]+360 a^3 b B (c+d x) \text{Cos}[4 (c+d x)]-$$
$$360 a b^3 B (c+d x) \text{Cos}[4 (c+d x)]-15 a^4 A (c+d x) \text{Cos}[6 (c+d x)]+90 a^2 A b^2 (c+d x) \text{Cos}[6 (c+d x)]-15 A b^4 (c+d x) \text{Cos}[6 (c+d x)]+$$
$$60 a^3 b B (c+d x) \text{Cos}[6 (c+d x)]-60 a b^3 B (c+d x) \text{Cos}[6 (c+d x)]+75 a^4 A \text{Sin}[2 (c+d x)]-360 a^2 A b^2 \text{Sin}[2 (c+d x)]+$$
$$75 A b^4 \text{Sin}[2 (c+d x)]-240 a^3 b B \text{Sin}[2 (c+d x)]+300 a b^3 B \text{Sin}[2 (c+d x)]+60 a^4 A \text{Sin}[4 (c+d x)]-360 a^2 A b^2 \text{Sin}[4 (c+d x)]+$$
$$48 A b^4 \text{Sin}[4 (c+d x)]-240 a^3 b B \text{Sin}[4 (c+d x)]+192 a b^3 B \text{Sin}[4 (c+d x)]+15 a^4 A \text{Sin}[6 (c+d x)]-120 a^2 A b^2 \text{Sin}[6 (c+d x)]+$$
$$\left.23 A b^4 \text{Sin}[6 (c+d x)]-80 a^3 b B \text{Sin}[6 (c+d x)]+92 a b^3 B \text{Sin}[6 (c+d x)]\right) (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])$$

- **Problem 258: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d x] (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 226 leaves, 6 steps) :

$$-\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) x-\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) \text{Log}[\text{Cos}[c+d x]]}{d}+$$
$$\frac{b \left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{Tan}[c+d x]}{d}+\frac{\left(a^2 A-A b^2-2 a b B\right) (a+b \text{Tan}[c+d x])^2}{2 d}+$$
$$\frac{(a A-b B) (a+b \text{Tan}[c+d x])^3}{3 d}+\frac{A (a+b \text{Tan}[c+d x])^4}{4 d}+\frac{B (a+b \text{Tan}[c+d x])^5}{5 b d}$$

Result (type 3, 803 leaves) :

$$\left(\left(-a^4 A+6 a^2 A b^2-A b^4+4 a^3 b B-4 a b^3 B\right) \text{Cos}[c+d x]^5 \text{Log}[\text{Cos}[c+d x]] (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])\right) /$$
$$\left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\frac{1}{240 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])} \left(540 a^2 A b^2 \text{Cos}[c+d x]-120 A b^4 \text{Cos}[c+d x]+360 a^3 b B \text{Cos}[c+d x]-\right.$$
$$480 a b^3 B \text{Cos}[c+d x]-600 a^3 A b (c+d x) \text{Cos}[c+d x]+600 a A b^3 (c+d x) \text{Cos}[c+d x]-150 a^4 B (c+d x) \text{Cos}[c+d x]+$$
$$900 a^2 b^2 B (c+d x) \text{Cos}[c+d x]-150 b^4 B (c+d x) \text{Cos}[c+d x]+180 a^2 A b^2 \text{Cos}[3 (c+d x)]-60 A b^4 \text{Cos}[3 (c+d x)]+$$
$$120 a^3 b B \text{Cos}[3 (c+d x)]-240 a b^3 B \text{Cos}[3 (c+d x)]-300 a^3 A b (c+d x) \text{Cos}[3 (c+d x)]+300 a A b^3 (c+d x) \text{Cos}[3 (c+d x)]-$$
$$75 a^4 B (c+d x) \text{Cos}[3 (c+d x)]+450 a^2 b^2 B (c+d x) \text{Cos}[3 (c+d x)]-75 b^4 B (c+d x) \text{Cos}[3 (c+d x)]-$$
$$60 a^3 A b (c+d x) \text{Cos}[5 (c+d x)]+60 a A b^3 (c+d x) \text{Cos}[5 (c+d x)]-15 a^4 B (c+d x) \text{Cos}[5 (c+d x)]+$$
$$90 a^2 b^2 B (c+d x) \text{Cos}[5 (c+d x)]-15 b^4 B (c+d x) \text{Cos}[5 (c+d x)]+120 a^3 A b \text{Sin}[c+d x]-80 a A b^3 \text{Sin}[c+d x]+$$
$$30 a^4 B \text{Sin}[c+d x]-120 a^2 b^2 B \text{Sin}[c+d x]+50 b^4 B \text{Sin}[c+d x]+180 a^3 A b \text{Sin}[3 (c+d x)]-160 a A b^3 \text{Sin}[3 (c+d x)]+$$
$$45 a^4 B \text{Sin}[3 (c+d x)]-240 a^2 b^2 B \text{Sin}[3 (c+d x)]+25 b^4 B \text{Sin}[3 (c+d x)]+60 a^3 A b \text{Sin}[5 (c+d x)]-80 a A b^3 \text{Sin}[5 (c+d x)]+$$
$$\left.15 a^4 B \text{Sin}[5 (c+d x)]-120 a^2 b^2 B \text{Sin}[5 (c+d x)]+23 b^4 B \text{Sin}[5 (c+d x)]\right) (a+b \text{Tan}[c+d x])^4 (A+B \text{Tan}[c+d x])$$

Problem 259: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 202 leaves, 5 steps):

$$\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) x-\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) \mathrm{Log}[\mathrm{Cos}[c+d x]]}{d}+\frac{b\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \mathrm{Tan}[c+d x]}{d}+\frac{\left(2 a A b+a^2 B-b^2 B\right)(a+b\,\mathrm{Tan}[c+d x])^2}{2 d}+\frac{(A b+a B)(a+b\,\mathrm{Tan}[c+d x])^3}{3 d}+\frac{B(a+b\,\mathrm{Tan}[c+d x])^4}{4 d}$$

Result (type 3, 626 leaves):

$$\frac{b^4 B\,\mathrm{Cos}[c+d x]\,(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])}{4 d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])}-\frac{b^2\left(-2 a A b-3 a^2 B+b^2 B\right) \mathrm{Cos}[c+d x]^3\,(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])}{d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])}+\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right)(c+d x)\,\mathrm{Cos}[c+d x]^5\,(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])}{d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])}+\left(\left(-4 a^3 A b+4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right) \mathrm{Cos}[c+d x]^5\,\mathrm{Log}[\mathrm{Cos}[c+d x]]\,(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+\left(2\,\mathrm{Cos}[c+d x]^4\left(9 a^2 A b^2\,\mathrm{Sin}[c+d x]-2 A b^4\,\mathrm{Sin}[c+d x]+6 a^3 b B\,\mathrm{Sin}[c+d x]-8 a b^3 B\,\mathrm{Sin}[c+d x]\right)(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/\left(3 d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+\frac{\mathrm{Cos}[c+d x]^2\left(A b^4\,\mathrm{Sin}[c+d x]+4 a b^3 B\,\mathrm{Sin}[c+d x]\right)(a+b\,\mathrm{Tan}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])}{3 d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])}$$

Problem 260: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 172 leaves, 6 steps):

$$\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) x-\frac{b\left(6 a^2 A b-A b^3+4 a^3 B-4 a b^2 B\right) \mathrm{Log}[\mathrm{Cos}[c+d x]]}{d}+\frac{a^4 A\,\mathrm{Log}[\mathrm{Sin}[c+d x]]}{d}+\frac{b^2\left(3 a A b+3 a^2 B-b^2 B\right) \mathrm{Tan}[c+d x]}{d}+\frac{b(A b+2 a B)(a+b\,\mathrm{Tan}[c+d x])^2}{2 d}+\frac{b B(a+b\,\mathrm{Tan}[c+d x])^3}{3 d}$$

Result (type 3, 590 leaves):

$$\frac{b^3 (A b + 4 a B) \cos[c + d x]^3 (a + b \tan[c + d x])^4 (A + B \tan[c + d x])}{2 d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \frac{\left(4 a^3 A b - 4 a A b^3 + a^4 B - 6 a^2 b^2 B + b^4 B\right) (c + d x) \cos[c + d x]^5 (a + b \tan[c + d x])^4 (A + B \tan[c + d x])}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \left(\left(-6 a^2 A b^2 + A b^4 - 4 a^3 b B + 4 a b^3 B\right) \cos[c + d x]^5 \log[\cos[c + d x]] (a + b \tan[c + d x])^4 (A + B \tan[c + d x])\right) \Big/ \left(d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])\right) + \frac{a^4 A \cos[c + d x]^5 \log[\sin[c + d x]] (a + b \tan[c + d x])^4 (A + B \tan[c + d x])}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \frac{b^4 B \cos[c + d x]^2 \sin[c + d x] (a + b \tan[c + d x])^4 (A + B \tan[c + d x])}{3 d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} - \left(2 \cos[c + d x]^4 \left(-6 a A b^3 \sin[c + d x] - 9 a^2 b^2 B \sin[c + d x] + 2 b^4 B \sin[c + d x]\right) (a + b \tan[c + d x])^4 (A + B \tan[c + d x])\right) \Big/ \left(3 d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])\right)$$

- **Problem 261: Result more than twice size of optimal antiderivative.**

$$\int \cot[c + d x]^2 (a + b \tan[c + d x])^4 (A + B \tan[c + d x]) \, dx$$

Optimal (type 3, 175 leaves, 6 steps) :

$$-\left(a^4 A - 6 a^2 A b^2 + A b^4 - 4 a^3 b B + 4 a b^3 B\right) x - \frac{b^2 \left(4 a A b + 6 a^2 B - b^2 B\right) \log[\cos[c + d x]]}{d} + \frac{a^3 (4 A b + a B) \log[\sin[c + d x]]}{d} + \frac{b^2 \left(a^2 A + A b^2 + 3 a b B\right) \tan[c + d x]}{d} + \frac{b (2 a A + b B) (a + b \tan[c + d x])^2}{2 d} - \frac{a A \cot[c + d x] (a + b \tan[c + d x])^3}{d}$$

Result (type 3, 579 leaves) :

$$-\frac{a^4 A \cos[c + d x] (b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \sin[c + d x]^4}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} - \frac{\left(a^4 A - 6 a^2 A b^2 + A b^4 - 4 a^3 b B + 4 a b^3 B\right) (c + d x) (b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \sin[c + d x]^5}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \frac{\left(-4 a A b^3 - 6 a^2 b^2 B + b^4 B\right) (b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \log[\cos[c + d x]] \sin[c + d x]^5}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \frac{\left(4 a^3 A b + a^4 B\right) (b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \log[\sin[c + d x]] \sin[c + d x]^5}{d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])} + \left((b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \sin[c + d x]^4 \left(A b^4 \sin[c + d x] + 4 a b^3 B \sin[c + d x]\right) \tan[c + d x]\right) \Big/ \left(d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])\right) + \frac{b^4 B (b + a \cot[c + d x])^4 (B + A \cot[c + d x]) \sin[c + d x]^3 \tan[c + d x]^2}{2 d (a \cos[c + d x] + b \sin[c + d x])^4 (A \cos[c + d x] + B \sin[c + d x])}$$

Problem 262: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^4 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 186 leaves, 6 steps):

$$-\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) x-\frac{b^3 (A b+4 a B) \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{a^2 \left(a^2 A-6 A b^2-4 a b B\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}+\frac{b^2 \left(3 a A b+a^2 B+b^2 B\right) \operatorname{Tan}[c+d x]}{d}-\frac{a (5 A b+2 a B) \operatorname{Cot}[c+d x] (a+b \operatorname{Tan}[c+d x])^2}{2 d}-\frac{a A \operatorname{Cot}[c+d x]^2 (a+b \operatorname{Tan}[c+d x])^3}{2 d}$$

Result (type 3, 567 leaves):

$$-\frac{a^4 A (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{\left(-4 a^3 A b \operatorname{Cos}[c+d x]-a^4 B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}-\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) (c+d x) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{\left(-A b^4-4 a b^3 B\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{\left(-a^4 A+6 a^2 A b^2+4 a^3 b B\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+\frac{b^4 B (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^5 \operatorname{Tan}[c+d x]}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}$$

Problem 263: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^4 (a+b \operatorname{Tan}[c+d x])^4 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 187 leaves, 6 steps):

$$\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) x+\frac{a^2 \left(a^2 A-3 A b^2-3 a b B\right) \operatorname{Cot}[c+d x]}{d}-\frac{b^4 B \operatorname{Log}[\operatorname{Cos}[c+d x]]}{d}-\frac{a \left(4 a^2 A b-4 A b^3+a^3 B-6 a b^2 B\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{a (2 A b+a B) \operatorname{Cot}[c+d x]^2 (a+b \operatorname{Tan}[c+d x])^2}{2 d}-\frac{a A \operatorname{Cot}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^3}{3 d}$$

Result (type 3, 592 leaves):

$$-\frac{a^4 A \operatorname{Cos}[c+d x] (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2}{3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}-\frac{a^3 (4 A b+a B) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3}{2 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(2 \left(2 a^4 A \operatorname{Cos}[c+d x]-9 a^2 A b^2 \operatorname{Cos}[c+d x]-6 a^3 b B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4\right) /$$
$$\left(3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) (c+d x) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}-$$
$$\frac{b^4 B (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Cos}[c+d x]] \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(\left(-4 a^3 A b+4 a A b^3-a^4 B+6 a^2 b^2 B\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^5\right) /$$
$$\left(d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

- **Problem 264: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Cot}[c+d x]^5 (a+b \operatorname{Tan}[c+d x])^4 (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 225 leaves, 6 steps):

$$\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) x+\frac{a \left(24 a^2 A b-19 A b^3+6 a^3 B-34 a b^2 B\right) \operatorname{Cot}[c+d x]}{6 d}+$$
$$\frac{a^2 \left(6 a^2 A-13 A b^2-16 a b B\right) \operatorname{Cot}[c+d x]^2}{12 d}+\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-$$
$$\frac{a (7 A b+4 a B) \operatorname{Cot}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^2}{12 d}-\frac{a A \operatorname{Cot}[c+d x]^4 (a+b \operatorname{Tan}[c+d x])^3}{4 d}$$

Result (type 3, 624 leaves):

$$-\frac{a^4 A (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]}{4 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{\left(-4 a^3 A b \operatorname{Cos}[c+d x]-a^4 B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2}{3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\frac{a^2 \left(a^2 A-3 A b^2-2 a b B\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(2 \left(8 a^3 A b \operatorname{Cos}[c+d x]-6 a A b^3 \operatorname{Cos}[c+d x]+2 a^4 B \operatorname{Cos}[c+d x]-9 a^2 b^2 B \operatorname{Cos}[c+d x]\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4\right) /$$
$$\left(3 d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) (c+d x) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^5}{d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}+$$
$$\left(\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) (b+a \operatorname{Cot}[c+d x])^4 (B+A \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^5\right) /$$
$$\left(d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^4 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

Problem 265: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^6\,(a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 273 leaves, 7 steps):

$$-\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) x-\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) \mathrm{Cot}[c+d\,x]}{d}+\frac{a\left(40 a^2 A b-28 A b^3+10 a^3 B-55 a b^2 B\right) \mathrm{Cot}[c+d\,x]^2}{20\,d}+\frac{a^2\left(10 a^2 A-18 A b^2-25 a b B\right) \mathrm{Cot}[c+d\,x]^3}{30\,d}+\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) \mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}-\frac{a\,(8 A b+5 a B)\,\mathrm{Cot}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{20\,d}-\frac{a\,A\,\mathrm{Cot}[c+d\,x]^5\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{5\,d}$$

Result (type 3, 801 leaves):

$$\left(\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right)(b+a\,\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\mathrm{Sin}[c+d\,x]^5\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)+\frac{1}{240\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}(b+a\,\mathrm{Cot}[c+d\,x])^4\,(B+A\,\mathrm{Cot}[c+d\,x])\Big(-50 a^4 A\,\mathrm{Cos}[c+d\,x]+120 a^2 A b^2\,\mathrm{Cos}[c+d\,x]-30 A b^4\,\mathrm{Cos}[c+d\,x]+80 a^3 b B\,\mathrm{Cos}[c+d\,x]-120 a b^3 B\,\mathrm{Cos}[c+d\,x]+25 a^4 A\,\mathrm{Cos}[3(c+d\,x)]-240 a^2 A b^2\,\mathrm{Cos}[3(c+d\,x)]+45 A b^4\,\mathrm{Cos}[3(c+d\,x)]-160 a^3 b B\,\mathrm{Cos}[3(c+d\,x)]+180 a b^3 B\,\mathrm{Cos}[3(c+d\,x)]-23 a^4 A\,\mathrm{Cos}[5(c+d\,x)]+120 a^2 A b^2\,\mathrm{Cos}[5(c+d\,x)]-15 A b^4\,\mathrm{Cos}[5(c+d\,x)]+80 a^3 b B\,\mathrm{Cos}[5(c+d\,x)]-60 a b^3 B\,\mathrm{Cos}[5(c+d\,x)]+480 a^3 A b\,\mathrm{Sin}[c+d\,x]-360 a A b^3\,\mathrm{Sin}[c+d\,x]+120 a^4 B\,\mathrm{Sin}[c+d\,x]-540 a^2 b^2 B\,\mathrm{Sin}[c+d\,x]-150 a^4 A\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+900 a^2 A b^2\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-150 A b^4\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+600 a^3 b B\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-600 a b^3 B\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-240 a^3 A b\,\mathrm{Sin}[3(c+d\,x)]+120 a A b^3\,\mathrm{Sin}[3(c+d\,x)]-60 a^4 B\,\mathrm{Sin}[3(c+d\,x)]+180 a^2 b^2 B\,\mathrm{Sin}[3(c+d\,x)]+75 a^4 A\,(c+d\,x)\,\mathrm{Sin}[3(c+d\,x)]-450 a^2 A b^2\,(c+d\,x)\,\mathrm{Sin}[3(c+d\,x)]+75 A b^4\,(c+d\,x)\,\mathrm{Sin}[3(c+d\,x)]-300 a^3 b B\,(c+d\,x)\,\mathrm{Sin}[3(c+d\,x)]+300 a b^3 B\,(c+d\,x)\,\mathrm{Sin}[3(c+d\,x)]-15 a^4 A\,(c+d\,x)\,\mathrm{Sin}[5(c+d\,x)]+90 a^2 A b^2\,(c+d\,x)\,\mathrm{Sin}[5(c+d\,x)]-15 A b^4\,(c+d\,x)\,\mathrm{Sin}[5(c+d\,x)]+60 a^3 b B\,(c+d\,x)\,\mathrm{Sin}[5(c+d\,x)]-60 a b^3 B\,(c+d\,x)\,\mathrm{Sin}[5(c+d\,x)]\Big)$$

Problem 266: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^7\,(a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 323 leaves, 8 steps):

$$-\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) x-\frac{\left(4 a^3 A b-4 a A b^3+a^4 B-6 a^2 b^2 B+b^4 B\right) \text{Cot}[c+d x]}{d}-$$
$$\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) \text{Cot}[c+d x]^2}{2 d}+\frac{a \left(20 a^2 A b-13 A b^3+5 a^3 B-27 a b^2 B\right) \text{Cot}[c+d x]^3}{15 d}+$$
$$\frac{a^2 \left(5 a^2 A-8 A b^2-12 a b B\right) \text{Cot}[c+d x]^4}{20 d}-\frac{\left(a^4 A-6 a^2 A b^2+A b^4-4 a^3 b B+4 a b^3 B\right) \text{Log}[\text{Sin}[c+d x]]}{d}-$$
$$\frac{a (3 A b+2 a B) \text{Cot}[c+d x]^5 (a+b \text{Tan}[c+d x])^2}{10 d}-\frac{a A \text{Cot}[c+d x]^6 (a+b \text{Tan}[c+d x])^3}{6 d}$$

Result (type 3, 960 leaves) :

$$\left(\left(-a^4 A+6 a^2 A b^2-A b^4+4 a^3 b B-4 a b^3 B\right) (b+a \text{Cot}[c+d x])^4 (B+A \text{Cot}[c+d x]) \text{Log}[\text{Sin}[c+d x]] \text{Sin}[c+d x]^5\right) \Big/$$
$$\left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\frac{1}{480 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])} (b+a \text{Cot}[c+d x])^4 (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]$$
$$\left(-170 a^4 A+720 a^2 A b^2-90 A b^4+480 a^3 b B-360 a b^3 B-600 a^3 A b (c+d x)+600 a A b^3 (c+d x)-150 a^4 B (c+d x)+900 a^2 b^2 B (c+d x)-\right.$$
$$150 b^4 B (c+d x)+180 a^4 A \text{Cos}[2 (c+d x)]-1080 a^2 A b^2 \text{Cos}[2 (c+d x)]+120 A b^4 \text{Cos}[2 (c+d x)]-720 a^3 b B \text{Cos}[2 (c+d x)]+$$
$$480 a b^3 B \text{Cos}[2 (c+d x)]+900 a^3 A b (c+d x) \text{Cos}[2 (c+d x)]-900 a A b^3 (c+d x) \text{Cos}[2 (c+d x)]+225 a^4 B (c+d x) \text{Cos}[2 (c+d x)]-$$
$$1350 a^2 b^2 B (c+d x) \text{Cos}[2 (c+d x)]+225 b^4 B (c+d x) \text{Cos}[2 (c+d x)]-90 a^4 A \text{Cos}[4 (c+d x)]+360 a^2 A b^2 \text{Cos}[4 (c+d x)]-$$
$$30 A b^4 \text{Cos}[4 (c+d x)]+240 a^3 b B \text{Cos}[4 (c+d x)]-120 a b^3 B \text{Cos}[4 (c+d x)]-360 a^3 A b (c+d x) \text{Cos}[4 (c+d x)]+$$
$$360 a A b^3 (c+d x) \text{Cos}[4 (c+d x)]-90 a^4 B (c+d x) \text{Cos}[4 (c+d x)]+540 a^2 b^2 B (c+d x) \text{Cos}[4 (c+d x)]-$$
$$90 b^4 B (c+d x) \text{Cos}[4 (c+d x)]+60 a^3 A b (c+d x) \text{Cos}[6 (c+d x)]-60 a A b^3 (c+d x) \text{Cos}[6 (c+d x)]+15 a^4 B (c+d x) \text{Cos}[6 (c+d x)]-$$
$$90 a^2 b^2 B (c+d x) \text{Cos}[6 (c+d x)]+15 b^4 B (c+d x) \text{Cos}[6 (c+d x)]-300 a^3 A b \text{Sin}[2 (c+d x)]+240 a A b^3 \text{Sin}[2 (c+d x)]-$$
$$75 a^4 B \text{Sin}[2 (c+d x)]+360 a^2 b^2 B \text{Sin}[2 (c+d x)]-75 b^4 B \text{Sin}[2 (c+d x)]+192 a^3 A b \text{Sin}[4 (c+d x)]-$$
$$240 a A b^3 \text{Sin}[4 (c+d x)]+48 a^4 B \text{Sin}[4 (c+d x)]-360 a^2 b^2 B \text{Sin}[4 (c+d x)]+60 b^4 B \text{Sin}[4 (c+d x)]-$$
$$\left.92 a^3 A b \text{Sin}[6 (c+d x)]+80 a A b^3 \text{Sin}[6 (c+d x)]-23 a^4 B \text{Sin}[6 (c+d x)]+120 a^2 b^2 B \text{Sin}[6 (c+d x)]-15 b^4 B \text{Sin}[6 (c+d x)]\right)$$

- **Problem 268: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^2 (A+B \text{Tan}[c+d x])}{a+b \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 101 leaves, 5 steps) :

$$-\frac{(a A+b B) x}{a^2+b^2}-\frac{(A b-a B) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right) d}+\frac{a^2 (A b-a B) \text{Log}[a+b \text{Tan}[c+d x]]}{b^2 \left(a^2+b^2\right) d}+\frac{B \text{Tan}[c+d x]}{b d}$$

Result (type 3, 203 leaves) :

$$\left((a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (A+B \text{Tan}[c+d x]) \left(-a A b^2 c-b^3 B c-a A b^2 d x-b^3 B d x+\left(a^2+b^2\right) (-A b+a B) \text{Log}[\text{Cos}[c+d x]]+\right.\right.$$
$$\left.\left.a^2 A b \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]-a^3 B \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+b \left(a^2+b^2\right) B \text{Tan}[c+d x]\right)\right) \Big/$$
$$\left((a-i b) (a+i b) b^2 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])\right)$$

Problem 272: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \text{Tan}[c+d x])}{a+b \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 103 leaves, 4 steps):

$$-\frac{(a A+b B) x}{a^2+b^2}-\frac{A \text{Cot}[c+d x]}{a d}-\frac{(A b-a B) \text{Log}[\text{Sin}[c+d x]]}{a^2 d}+\frac{b^2 (A b-a B) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^2 \left(a^2+b^2\right) d}$$

Result (type 3, 201 leaves):

$$-\Big((B+A \text{Cot}[c+d x]) \left(a^3 A c+a^2 b B c+a^3 A d x+a^2 b B d x+a A \left(a^2+b^2\right) \text{Cot}[c+d x]-\left(a^2+b^2\right) (-A b+a B) \text{Log}[\text{Sin}[c+d x]]-\right.$$
$$\left.A b^3 \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+a b^2 B \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\Big)\Big/$$
$$\left(a^2 (a-i b) (a+i b) d (b+a \text{Cot}[c+d x]) (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

Problem 275: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 208 leaves, 6 steps):

$$-\frac{\left(2 a A b-a^2 B+b^2 B\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(a^2 A-A b^2+2 a b B\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^2 d}+$$
$$\frac{a^2 \left(a^2 A b+3 A b^3-2 a^3 B-4 a b^2 B\right) \text{Log}[a+b \text{Tan}[c+d x]]}{b^3 \left(a^2+b^2\right)^2 d}-\frac{\left(a A b-2 a^2 B-b^2 B\right) \text{Tan}[c+d x]}{b^2 \left(a^2+b^2\right) d}+\frac{a (A b-a B) \text{Tan}[c+d x]^2}{b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 869 leaves):

$$\frac{\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a-i\,b)^2\,(a+i\,b)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\left(\left(i\,a^7\,A\,b^3+a^6\,A\,b^4+4\,i\,a^5\,A\,b^5+4\,a^4\,A\,b^6+3\,i\,a^3\,A\,b^7+3\,a^2\,A\,b^8-2\,i\,a^8\,b^2\,B-2\,a^7\,b^3\,B-6\,i\,a^6\,b^4\,B-6\,a^5\,b^5\,B-4\,i\,a^4\,b^6\,B-4\,a^3\,b^7\,B\right)\right.$$
$$\left.(c+d\,x)\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-i\,b)^4\,(a+i\,b)^3\,b^5\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2\right)-$$
$$\left(i\,\left(a^4\,A\,b+3\,a^2\,A\,b^3-2\,a^5\,B-4\,a^3\,b^2\,B\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(b^3\,\left(a^2+b^2\right)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2\right)+$$

$$\frac{(-A\,b+2\,a\,B)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{b^3\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\left(\left(a^4\,A\,b+3\,a^2\,A\,b^3-2\,a^5\,B-4\,a^3\,b^2\,B\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,b^3\,\left(a^2+b^2\right)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2\right)+$$

$$\frac{\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\left(-a^2\,A\,b\,\mathrm{Sin}[c+d\,x]+a^3\,B\,\mathrm{Sin}[c+d\,x]\right)\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a-i\,b)\,(a+i\,b)\,b^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+$$

$$\frac{B\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,\mathrm{Tan}[c+d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{b^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^2}$$

Problem 276: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Tan}[c+d\,x]^2\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 157 leaves, 5 steps):

$$-\frac{\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\,x}{\left(a^2+b^2\right)^2}-\frac{\left(2\,a\,A\,b-a^2\,B+b^2\,B\right)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{\left(a^2+b^2\right)^2\,d}-$$
$$\frac{a\,\left(2\,A\,b^3-a\,\left(a^2+3\,b^2\right)\,B\right)\,\mathrm{Log}[a+b\,\mathrm{Tan}[c+d\,x]]}{b^2\,\left(a^2+b^2\right)^2\,d}-\frac{a^2\,(A\,b-a\,B)}{b^2\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 323 leaves):

$$\frac{1}{2\,b^2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}\left(a\,\left(2\,(a+i\,b)^2\,\left(-A\,b^2+a\,(i\,a+2\,b)\,B\right)\,(c+d\,x)-\right.\right.$$
$$\left.2\,\left(a^2+b^2\right)^2\,B\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]+a\,\left(-2\,A\,b^3+a\,\left(a^2+3\,b^2\right)\,B\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)+$$
$$b\,\left(2\,(a+i\,b)\,\left(-i\,A\,b^3\,(c+d\,x)+i\,a^3\,B\,(i+c+d\,x)-a\,b^2\,(-2\,i\,B\,(c+d\,x)+A\,(i+c+d\,x))+a^2\,b\,(A+B\,(i+c+d\,x))\right)-\right.$$
$$2\,\left(a^2+b^2\right)^2\,B\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]+a\,\left(-2\,A\,b^3+a\,\left(a^2+3\,b^2\right)\,B\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\right)\,\mathrm{Tan}[c+d\,x]-$$
$$\left.2\,i\,a\,\left(-2\,A\,b^3+a\,\left(a^2+3\,b^2\right)\,B\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,(a+b\,\mathrm{Tan}[c+d\,x])\right)$$

Problem 277: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\tan[c+dx]\,(A+B\tan[c+dx])}{(a+b\tan[c+dx])^2}\,dx$$

Optimal (type 3, 115 leaves, 3 steps):

$$\frac{\left(2 a A b-a^2 B+b^2 B\right) x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2 A-A b^2+2 a b B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}+\frac{a\,(A b-a B)}{b\left(a^2+b^2\right) d\,(a+b \text{Tan}[c+d x])}$$

Result (type 3, 252 leaves):

$$\frac{1}{2\left(a^2+b^2\right)^2 d\,(a+b \text{Tan}[c+d x])}\left(a\left(-2 i\,(a+i b)^2 (A-i B)\,(c+d x)+\left(-a^2 A+A b^2-2 a b B\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+\left(-2 i\,(a+i b)\left(i a^2 B+b^2 (B\,(c+d x)+i A\,(i+c+d x))+a b\,(A\,(-i+c+d x)-i B\,(i+c+d x))\right)+b\left(-a^2 A+A b^2-2 a b B\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right) \text{Tan}[c+d x]+2 i\left(a^2 A-A b^2+2 a b B\right) \text{ArcTan}[\text{Tan}[c+d x]]\,(a+b \text{Tan}[c+d x])\right)$$

Problem 278: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\tan[c+dx]}{(a+b\tan[c+dx])^2}\,dx$$

Optimal (type 3, 111 leaves, 3 steps):

$$\frac{\left(a^2 A-A b^2+2 a b B\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(2 a A b-a^2 B+b^2 B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{A b-a B}{\left(a^2+b^2\right) d\,(a+b \text{Tan}[c+d x])}$$

Result (type 3, 257 leaves):

$$\frac{1}{2 a\left(a^2+b^2\right)^2 d\,(a+b \text{Tan}[c+d x])}\left(a^2\left(2\,(a+i b)^2 (A-i B)\,(c+d x)+\left(2 a A b-a^2 B+b^2 B\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+b\left(2\,(a+i b)\left(-i A b^2+a^2 (A\,(c+d x)-i B\,(-i+c+d x))+a b\,(A\,(1+i c+i d x)+B\,(i+c+d x))\right)+a\left(2 a A b-a^2 B+b^2 B\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right) \text{Tan}[c+d x]+2 i a\left(-2 a A b+a^2 B-b^2 B\right) \text{ArcTan}[\text{Tan}[c+d x]]\,(a+b \text{Tan}[c+d x])\right)$$

Problem 279: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\cot[c+dx]\,(A+B\tan[c+dx])}{(a+b\tan[c+dx])^2}\,dx$$

Optimal (type 3, 137 leaves, 4 steps):

$$-\frac{\left(2 a A b-a^2 B+b^2 B\right) x}{\left(a^2+b^2\right)^2}+\frac{A \text{Log}[\text{Sin}[c+d x]]}{a^2 d}-\frac{b\left(3 a^2 A b+A b^3-2 a^3 B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^2\left(a^2+b^2\right)^2 d}+\frac{b\,(A b-a B)}{a\left(a^2+b^2\right) d\,(a+b \text{Tan}[c+d x])}$$

Result (type 3, 325 leaves):

$$\frac{1}{2 a^2 \left(a^2+b^2\right)^2 d\, (a+b \,\text{Tan}[c+d x])}\bigg(a \Big(2 (a+i b)^2 \left(-2 a A b+i A b^2+a^2 B\right) (c+d x)+2 A \left(a^2+b^2\right)^2 \text{Log}[\text{Sin}[c+d x]]-b \left(3 a^2 A b+A b^3-2 a^3 B\right) \text{Log}\left[(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right]\Big)+b \Big(2 (a+i b) \left(a^3 B (c+d x)-A b^3 (-i+c+d x)+a^2 b (B (1+i c+i d x)-2 A (c+d x))-i a b^2 (B+A (-i+c+d x))\right)+2 A \left(a^2+b^2\right)^2 \text{Log}[\text{Sin}[c+d x]]-b \left(3 a^2 A b+A b^3-2 a^3 B\right) \text{Log}\left[(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right]\Big) \text{Tan}[c+d x]+2 i b \left(3 a^2 A b+A b^3-2 a^3 B\right) \text{ArcTan}[\text{Tan}[c+d x]] (a+b \,\text{Tan}[c+d x])\bigg)$$

- **Problem 280: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \,\text{Tan}[c+d x])}{(a+b \,\text{Tan}[c+d x])^2}\, dx$$

Optimal (type 3, 192 leaves, 5 steps):

$$-\frac{\left(a^2 A-A b^2+2 a b B\right) x}{\left(a^2+b^2\right)^2}-\frac{(2 A b-a B) \,\text{Log}[\text{Sin}[c+d x]]}{a^3 d}+\frac{b^2 \left(4 a^2 A b+2 A b^3-3 a^3 B-a b^2 B\right) \text{Log}[a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]]}{a^3 \left(a^2+b^2\right)^2 d}-\frac{b \left(a^2 A+2 A b^2-a b B\right)}{a^2 \left(a^2+b^2\right) d\, (a+b \,\text{Tan}[c+d x])}-\frac{A \,\text{Cot}[c+d x]}{a d\, (a+b \,\text{Tan}[c+d x])}$$

Result (type 3, 873 leaves):

$$-\frac{\left(a^2 A-A b^2+2 a b B\right) (c+d x) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2}{(a-i b)^2 (a+i b)^2 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\Big(\left(4 i a^{10} A b^3+4 a^9 A b^4+6 i a^8 A b^5+6 a^7 A b^6+2 i a^6 A b^7+2 a^5 A b^8-3 i a^{11} b^2 B-3 a^{10} b^3 B-4 i a^9 b^4 B-4 a^8 b^5 B-i a^7 b^6 B-a^6 b^7 B\right) (c+d x) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\Big)\Big/\left(a^8 (a-i b)^4 (a+i b)^3 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)-$$

$$\left(i \left(4 a^2 A b^3+2 A b^5-3 a^3 b^2 B-a b^4 B\right) \text{ArcTan}[\text{Tan}[c+d x]] (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right)\Big/\left(a^3 \left(a^2+b^2\right)^2 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)-$$

$$\frac{A \,\text{Cot}[c+d x] (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2}{a^2 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\frac{(-2 A b+a B) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] \,\text{Log}[\text{Sin}[c+d x]] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2}{a^3 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\left(\left(4 a^2 A b^3+2 A b^5-3 a^3 b^2 B-a b^4 B\right) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] \,\text{Log}\left[(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right)\Big/\left(2 a^3 \left(a^2+b^2\right)^2 d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)+$$

$$\frac{(B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]) \left(A b^4 \,\text{Sin}[c+d x]-a b^3 B \,\text{Sin}[c+d x]\right)}{a^3 (a-i b) (a+i b) d\, (b+a \,\text{Cot}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}$$

Problem 281: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 250 leaves, 6 steps):

$$\frac{\left(2 a A b-a^2 B+b^2 B\right) x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2 A-3 A b^2+2 a b B\right) \text{Log}[\text{Sin}[c+d x]]}{a^4 d}-\frac{b^3 \left(5 a^2 A b+3 A b^3-4 a^3 B-2 a b^2 B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^4 \left(a^2+b^2\right)^2 d}+$$
$$\frac{b \left(2 a^2 A b+3 A b^3-a^3 B-2 a b^2 B\right)}{a^3 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}+\frac{(3 A b-2 a B) \text{Cot}[c+d x]}{2 a^2 d (a+b \text{Tan}[c+d x])}-\frac{A \text{Cot}[c+d x]^2}{2 a d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 977 leaves):

$$-\frac{\left(-2 a A b+a^2 B-b^2 B\right) (c+d x) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{(a-i b)^2 (a+i b)^2 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}+$$
$$\left(\left(-5 i a^{11} A b^4-5 a^{10} A b^5-8 i a^9 A b^6-8 a^8 A b^7-3 i a^7 A b^8-3 a^6 A b^9+4 i a^{12} b^3 B+4 a^{11} b^4 B+6 i a^{10} b^5 B+6 a^9 b^6 B+2 i a^8 b^7 B+2 a^7 b^8 B\right)\right.$$
$$\left.(c+d x) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^{10} (a-i b)^4 (a+i b)^3 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)-$$
$$\left(i \left(-5 a^2 A b^4-3 A b^6+4 a^3 b^3 B+2 a b^5 B\right) \text{ArcTan}[\text{Tan}[c+d x]] (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^4 \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\frac{(2 A b \text{Cos}[c+d x]-a B \text{Cos}[c+d x]) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{a^3 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}-$$
$$\frac{A (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}{2 a^2 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}+$$
$$\left(\left(-a^2 A+3 A b^2-2 a b B\right) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] \text{Log}[\text{Sin}[c+d x]] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^4 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\left(\left(-5 a^2 A b^4-3 A b^6+4 a^3 b^3 B+2 a b^5 B\right) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right) \Big/$$
$$\left(2 a^4 \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\frac{(B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \left(-A b^5 \text{Sin}[c+d x]+a b^4 B \text{Sin}[c+d x]\right)}{a^4 (a-i b) (a+i b) d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])}$$

Problem 282: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^4 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 331 leaves, 7 steps):

$$\frac{\left(a^3 A-3 a A b^2+3 a^2 b B-b^3 B\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(3 a^2 A b-A b^3-a^3 B+3 a b^2 B\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+$$

$$\frac{a^2 \left(a^4 A b+3 a^2 A b^3+6 A b^5-3 a^5 B-9 a^3 b^2 B-10 a b^4 B\right) \text{Log}[a+b \text{Tan}[c+d x]]}{b^4 \left(a^2+b^2\right)^3 d}-\frac{\left(a^3 A b+3 a A b^3-3 a^4 B-6 a^2 b^2 B-b^4 B\right) \text{Tan}[c+d x]}{b^3 \left(a^2+b^2\right)^2 d}+$$

$$\frac{a (A b-a B) \text{Tan}[c+d x]^3}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{a \left(a^2 A b+5 A b^3-3 a^3 B-7 a b^2 B\right) \text{Tan}[c+d x]^2}{2 b^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1146 leaves) :

$$\frac{a^4 (-A b+a B) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (A+B \text{Tan}[c+d x])}{2 (a-i b)^2 (a+i b)^2 b^2 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3}+$$
$$\left(\left(a^3 A-3 a A b^2+3 a^2 b B-b^3 B\right) (c+d x) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A+B \text{Tan}[c+d x])\right) \Big/$$
$$\left((a-i b)^3 (a+i b)^3 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\Big(\Big(i a^{11} A b^4+a^{10} A b^5+5 i a^9 A b^6+5 a^8 A b^7+13 i a^7 A b^8+13 a^6 A b^9+15 i a^5 A b^{10}+15 a^4 A b^{11}+6 i a^3 A b^{12}+6 a^2 A b^{13}-3 i a^{12} b^3 B-3 a^{11} b^4 B-$$
$$15 i a^{10} b^5 B-15 a^9 b^6 B-31 i a^8 b^7 B-31 a^7 b^8 B-29 i a^6 b^9 B-29 a^5 b^{10} B-10 i a^4 b^{11} B-10 a^3 b^{12} B\Big) (c+d x) \text{Sec}[c+d x]^2$$
$$(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A+B \text{Tan}[c+d x])\Big) \Big/ \left((a-i b)^6 (a+i b)^5 b^7 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)-$$
$$\left(i \left(a^6 A b+3 a^4 A b^3+6 a^2 A b^5-3 a^7 B-9 a^5 b^2 B-10 a^3 b^4 B\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right.$$
$$\left.(A+B \text{Tan}[c+d x])\right) \Big/ \left(b^4 \left(a^2+b^2\right)^3 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\frac{(-A b+3 a B) \text{Log}[\text{Cos}[c+d x]] \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A+B \text{Tan}[c+d x])}{b^4 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3}+$$
$$\left(\left(a^6 A b+3 a^4 A b^3+6 a^2 A b^5-3 a^7 B-9 a^5 b^2 B-10 a^3 b^4 B\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^2\right.$$
$$\left.(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A+B \text{Tan}[c+d x])\right) \Big/ \left(2 b^4 \left(a^2+b^2\right)^3 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-a^4 A b \text{Sin}[c+d x]-4 a^2 A b^3 \text{Sin}[c+d x]+2 a^5 B \text{Sin}[c+d x]+5 a^3 b^2 B \text{Sin}[c+d x]\right)\right.$$
$$\left.(A+B \text{Tan}[c+d x])\right) \Big/ \left((a-i b)^2 (a+i b)^2 b^3 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$
$$\frac{B \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \text{Tan}[c+d x] (A+B \text{Tan}[c+d x])}{b^3 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3}$$

- **Problem 283: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 250 leaves, 6 steps) :

$$-\frac{\left(3 a^2 A b-A b^3-a^3 B+3 a b^2 B\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(a^3 A-3 a A b^2+3 a^2 b B-b^3 B\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+$$

$$\frac{a \left(a^2 A b^3-3 A b^5+a^5 B+3 a^3 b^2 B+6 a b^4 B\right) \text{Log}[a+b \text{Tan}[c+d x]]}{b^3 \left(a^2+b^2\right)^3 d}+\frac{a (A b-a B) \text{Tan}[c+d x]^2}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}-\frac{a^2 \left(2 A b^3-a \left(a^2+3 b^2\right) B\right)}{b^3 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 998 leaves) :

$$-\frac{a^3\,(-A\,b+a\,B)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3}+$$
$$\left(\left(-3\,a^2\,A\,b+A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)+$$
$$\left(\left(\mathrm{i}\,a^8\,A\,b^5+a^7\,A\,b^6-\mathrm{i}\,a^6\,A\,b^7-a^5\,A\,b^8-5\,\mathrm{i}\,a^4\,A\,b^9-5\,a^3\,A\,b^{10}-3\,\mathrm{i}\,a^2\,A\,b^{11}-3\,a\,A\,b^{12}+\mathrm{i}\,a^{11}\,b^2\,B+a^{10}\,b^3\,B+5\,\mathrm{i}\,a^9\,b^4\,B+5\,a^8\,b^5\,B+13\,\mathrm{i}\,a^7\,b^6\,B+\right.\right.$$
$$\left.\left.13\,a^6\,b^7\,B+15\,\mathrm{i}\,a^5\,b^8\,B+15\,a^4\,b^9\,B+6\,\mathrm{i}\,a^3\,b^{10}\,B+6\,a^2\,b^{11}\,B\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-\mathrm{i}\,b)^6\,(a+\mathrm{i}\,b)^5\,b^5\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)-$$
$$\left(\mathrm{i}\,\left(a^3\,A\,b^3-3\,a\,A\,b^5+a^6\,B+3\,a^4\,b^2\,B+6\,a^2\,b^4\,B\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(b^3\,\left(a^2+b^2\right)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)-$$
$$\frac{B\,\text{Log}[\text{Cos}[c+d\,x]]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])}{b^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3}+$$
$$\left(\left(a^3\,A\,b^3-3\,a\,A\,b^5+a^6\,B+3\,a^4\,b^2\,B+6\,a^2\,b^4\,B\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\,\text{Sec}[c+d\,x]^2\right.$$
$$\left.(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(2\,b^3\,\left(a^2+b^2\right)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)+$$
$$\left(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\left(3\,a\,A\,b^3\,\text{Sin}[c+d\,x]-a^4\,B\,\text{Sin}[c+d\,x]-4\,a^2\,b^2\,B\,\text{Sin}[c+d\,x]\right)\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)$$

- **Problem 284: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^2\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 189 leaves, 4 steps) :

$$-\frac{\left(a^3\,A-3\,a\,A\,b^2+3\,a^2\,b\,B-b^3\,B\right)\,x}{\left(a^2+b^2\right)^3}-\frac{\left(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^3\,d}-$$
$$\frac{a^2\,(A\,b-a\,B)}{2\,b^2\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{a\,\left(2\,A\,b^3-a\,\left(a^2+3\,b^2\right)\,B\right)}{b^2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 845 leaves) :

$$\frac{a^2\,(-A\,b+a\,B)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-$$
$$\left(\left(a^3\,A-3\,a\,A\,b^2+3\,a^2\,b\,B-b^3\,B\right)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^3\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)+$$
$$\left(\left(-3\,\mathrm{i}\,a^9\,A\,b-3\,a^8\,A\,b^2-5\,\mathrm{i}\,a^7\,A\,b^3-5\,a^6\,A\,b^4-\mathrm{i}\,a^5\,A\,b^5-a^4\,A\,b^6+\mathrm{i}\,a^3\,A\,b^7+a^2\,A\,b^8+\mathrm{i}\,a^{10}\,B+a^9\,b\,B-\mathrm{i}\,a^8\,b^2\,B-a^7\,b^3\,B-\right.\right.$$
$$\left.\left.5\,\mathrm{i}\,a^6\,b^4\,B-5\,a^5\,b^5\,B-3\,\mathrm{i}\,a^4\,b^6\,B-3\,a^3\,b^7\,B\right)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(a^2\,(a-\mathrm{i}\,b)^6\,(a+\mathrm{i}\,b)^5\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)-$$
$$\left(\mathrm{i}\,\left(-3\,a^2\,A\,b+A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(\left(a^2+b^2\right)^3\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)+$$
$$\left(\left(-3\,a^2\,A\,b+A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,\left(a^2+b^2\right)^3\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)+$$
$$\left(\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,\left(a^2\,A\,\mathrm{Sin}[c+d\,x]-2\,A\,b^2\,\mathrm{Sin}[c+d\,x]+3\,a\,b\,B\,\mathrm{Sin}[c+d\,x]\right)\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)$$

- **Problem 285: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 179 leaves, 4 steps):

$$\frac{\left(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B\right)\,x}{\left(a^2+b^2\right)^3}-\frac{\left(a^3\,A-3\,a\,A\,b^2+3\,a^2\,b\,B-b^3\,B\right)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^3\,d}+$$
$$\frac{a\,(A\,b-a\,B)}{2\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}+\frac{a^2\,A-A\,b^2+2\,a\,b\,B}{\left(a^2+b^2\right)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 587 leaves):

$$\Big(B\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\Big(-\frac{8\,a\,(a^2-3\,b^2)\,(c+d\,x)}{(a^2+b^2)^3}+\frac{8\,b\,(-3\,a^2+b^2)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3}+\frac{-3\,a^2\,b+b^3}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{6\,(a^2-3\,b^2)\,\mathrm{Sin}[c+d\,x]}{(a^2+b^2)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}+\frac{-b\,\mathrm{Cos}[2\,(c+d\,x)]+a\,\mathrm{Sin}[2\,(c+d\,x)]}{(a^2+b^2)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}\Big)\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/$$

$$\left(8\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)+\Big(A\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$

$$\Big(-\frac{8\,b\,(-3\,a^2+b^2)\,(c+d\,x)}{(a^2+b^2)^3}-\frac{8\,a\,(a^2-3\,b^2)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3}-\frac{a\,(a^2-3\,b^2)}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+$$

$$\frac{6\,b\,(-3\,a^2+b^2)\,\mathrm{Sin}[c+d\,x]}{a\,(a^2+b^2)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}+\frac{2\,b^2\,\mathrm{Sin}[c+d\,x]^2+a\,(a+b\,\mathrm{Sin}[2\,(c+d\,x)])}{a\,(a^2+b^2)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}\Big)$$

$$(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\left(8\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)$$

- **Problem 286: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 175 leaves, 4 steps):

$$\frac{(a^3\,A-3\,a\,A\,b^2+3\,a^2\,b\,B-b^3\,B)\,x}{(a^2+b^2)^3}+\frac{(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3\,d}-$$

$$\frac{A\,b-a\,B}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-\frac{2\,a\,A\,b-a^2\,B+b^2\,B}{(a^2+b^2)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 854 leaves):

$$\frac{b^2\,(-A\,b+a\,B)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])}{2\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3}+$$

$$\left(\left(a^3\,A-3\,a\,A\,b^2+3\,a^2\,b\,B-b^3\,B\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-i\,b)^3\,(a+i\,b)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)+$$
$$\left(\left(3\,i\,a^9\,A\,b+3\,a^8\,A\,b^2+5\,i\,a^7\,A\,b^3+5\,a^6\,A\,b^4+i\,a^5\,A\,b^5+a^4\,A\,b^6-i\,a^3\,A\,b^7-a^2\,A\,b^8-i\,a^{10}\,B-a^9\,b\,B+i\,a^8\,b^2\,B+a^7\,b^3\,B+\right.\right.$$
$$\left.\left.5\,i\,a^6\,b^4\,B+5\,a^5\,b^5\,B+3\,i\,a^4\,b^6\,B+3\,a^3\,b^7\,B\right)\,(c+d\,x)\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(a^2\,(a-i\,b)^6\,(a+i\,b)^5\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)-$$
$$\left(i\,\left(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(\left(a^2+b^2\right)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)+$$
$$\left(\left(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B\right)\,\text{Log}\left[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right]\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(2\,\left(a^2+b^2\right)^3\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)+$$
$$\left(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\left(3\,a\,A\,b^2\,\text{Sin}[c+d\,x]-2\,a^2\,b\,B\,\text{Sin}[c+d\,x]+b^3\,B\,\text{Sin}[c+d\,x]\right)\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(a\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^3\right)$$

- **Problem 287: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 215 leaves, 5 steps):

$$-\frac{\left(3\,a^2\,A\,b-A\,b^3-a^3\,B+3\,a\,b^2\,B\right)\,x}{\left(a^2+b^2\right)^3}+\frac{A\,\text{Log}[\text{Sin}[c+d\,x]]}{a^3\,d}-\frac{b\,\left(6\,a^4\,A\,b+3\,a^2\,A\,b^3+A\,b^5-3\,a^5\,B+a^3\,b^2\,B\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{a^3\,\left(a^2+b^2\right)^3\,d}+$$
$$\frac{b\,(A\,b-a\,B)}{2\,a\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{b\,\left(3\,a^2\,A\,b+A\,b^3-2\,a^3\,B\right)}{a^2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 1004 leaves):

$$-\frac{b^3 (-A b + a B) \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x]) (A + B \operatorname{Tan}[c+d x])}{2 a (a - i b)^2 (a + i b)^2 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3} +$$

$$\left(\left(-3 a^2 A b + A b^3 + a^3 B - 3 a b^2 B\right) (c + d x) \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^3 (A + B \operatorname{Tan}[c+d x])\right) \Big/ \left((a - i b)^3 (a + i b)^3 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3\right) +$$

$$\left(\left(-6 i a^{14} A b^2 - 6 a^{13} A b^3 - 15 i a^{12} A b^4 - 15 a^{11} A b^5 - 13 i a^{10} A b^6 - 13 a^9 A b^7 - 5 i a^8 A b^8 - 5 a^7 A b^9 - i a^6 A b^{10} - a^5 A b^{11} + 3 i a^{15} b B + 3 a^{14} b^2 B + 5 i a^{13} b^3 B + 5 a^{12} b^4 B + i a^{11} b^5 B + a^{10} b^6 B - i a^9 b^7 B - a^8 b^8 B\right) (c + d x) \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^3 (A + B \operatorname{Tan}[c+d x])\right) \Big/ \left(a^8 (a - i b)^6 (a + i b)^5 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3\right) -$$

$$\left(i \left(-6 a^4 A b^2 - 3 a^2 A b^4 - A b^6 + 3 a^5 b B - a^3 b^3 B\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^3 (A + B \operatorname{Tan}[c+d x])\right) \Big/ \left(a^3 \left(a^2 + b^2\right)^3 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3\right) +$$

$$\frac{A \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^3 (A + B \operatorname{Tan}[c+d x])}{a^3 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3} +$$

$$\left(\left(-6 a^4 A b^2 - 3 a^2 A b^4 - A b^6 + 3 a^5 b B - a^3 b^3 B\right) \operatorname{Log}\left[(a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^2\right] \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^3 (A + B \operatorname{Tan}[c+d x])\right) \Big/ \left(2 a^3 \left(a^2 + b^2\right)^3 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3\right) +$$

$$\left(\operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x])^2 \left(-4 a^2 A b^3 \operatorname{Sin}[c+d x] - A b^5 \operatorname{Sin}[c+d x] + 3 a^3 b^2 B \operatorname{Sin}[c+d x]\right) (A + B \operatorname{Tan}[c+d x])\right) \Big/ \left(a^3 (a - i b)^2 (a + i b)^2 d (A \operatorname{Cos}[c+d x] + B \operatorname{Sin}[c+d x]) (a + b \operatorname{Tan}[c+d x])^3\right)$$

- **Problem 288: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c+d x]^2 (A + B \operatorname{Tan}[c+d x])}{(a + b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 287 leaves, 6 steps):

$$-\frac{\left(a^3 A - 3 a A b^2 + 3 a^2 b B - b^3 B\right) x}{\left(a^2 + b^2\right)^3} - \frac{(3 A b - a B) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^4 d} + \frac{b^2 \left(10 a^4 A b + 9 a^2 A b^3 + 3 A b^5 - 6 a^5 B - 3 a^3 b^2 B - a b^4 B\right) \operatorname{Log}[a \operatorname{Cos}[c+d x] + b \operatorname{Sin}[c+d x]]}{a^4 \left(a^2 + b^2\right)^3 d} -$$

$$\frac{b \left(2 a^2 A + 3 A b^2 - a b B\right)}{2 a^2 \left(a^2 + b^2\right) d (a + b \operatorname{Tan}[c+d x])^2} - \frac{A \operatorname{Cot}[c+d x]}{a d (a + b \operatorname{Tan}[c+d x])^2} - \frac{b \left(a^4 A + 6 a^2 A b^2 + 3 A b^4 - 3 a^3 b B - a b^3 B\right)}{a^3 \left(a^2 + b^2\right)^2 d (a + b \operatorname{Tan}[c+d x])}$$

Result (type 3, 1150 leaves):

$$\frac{b^4 (-A b+a B) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])}{2 a^2 (a-i b)^2 (a+i b)^2 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}-$$

$$\left(\left(a^3 A-3 a A b^2+3 a^2 b B-b^3 B\right) (c+d x) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3\right) \Big/ \left((a-i b)^3 (a+i b)^3 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)+$$

$$\Big(\big(10 i a^{15} A b^3+10 a^{14} A b^4+29 i a^{13} A b^5+29 a^{12} A b^6+31 i a^{11} A b^7+31 a^{10} A b^8+15 i a^9 A b^9+15 a^8 A b^{10}+3 i a^7 A b^{11}+3 a^6 A b^{12}-6 i a^{16} b^2 B-6 a^{15} b^3 B-15 i a^{14} b^4 B-15 a^{13} b^5 B-13 i a^{12} b^6 B-13 a^{11} b^7 B-5 i a^{10} b^8 B-5 a^9 b^9 B-i a^8 b^{10} B-a^7 b^{11} B\big) (c+d x) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3\Big) \Big/ \left(a^{10} (a-i b)^6 (a+i b)^5 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)-$$

$$\left(i \left(10 a^4 A b^3+9 a^2 A b^5+3 A b^7-6 a^5 b^2 B-3 a^3 b^4 B-a b^6 B\right) \text{ArcTan}[\text{Tan}[c+d x]] (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3\right) \Big/ \left(a^4 \left(a^2+b^2\right)^3 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)-$$

$$\frac{A \,\text{Cot}[c+d x] (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3}{a^3 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\frac{(-3 A b+a B) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 \,\text{Log}[\text{Sin}[c+d x]] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3}{a^4 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])}+$$

$$\left(\left(10 a^4 A b^3+9 a^2 A b^5+3 A b^7-6 a^5 b^2 B-3 a^3 b^4 B-a b^6 B\right) (B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 \,\text{Log}\left[(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right] (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^3\right) \Big/ \left(2 a^4 \left(a^2+b^2\right)^3 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)+\Big((B+A \,\text{Cot}[c+d x]) \,\text{Csc}[c+d x]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 \left(5 a^2 A b^4 \,\text{Sin}[c+d x]+2 A b^6 \,\text{Sin}[c+d x]-4 a^3 b^3 B \,\text{Sin}[c+d x]-a b^5 B \,\text{Sin}[c+d x]\right)\Big) \Big/ \left(a^4 (a-i b)^2 (a+i b)^2 d (b+a \,\text{Cot}[c+d x])^3 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right)$$

- **Problem 289: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^3 (A+B \,\text{Tan}[c+d x])}{(a+b \,\text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 352 leaves, 7 steps):

$$\frac{\left(3 a^2 A b-A b^3-a^3 B+3 a b^2 B\right) x}{\left(a^2+b^2\right)^3}-\frac{\left(a^2 A-6 A b^2+3 a b B\right) \text{Log}[\text{Sin}[c+d x]]}{a^5 d}-$$

$$\frac{b^3 \left(15 a^4 A b+17 a^2 A b^3+6 A b^5-10 a^5 B-9 a^3 b^2 B-3 a b^4 B\right) \text{Log}[a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]]}{a^5 \left(a^2+b^2\right)^3 d}+\frac{b \left(5 a^2 A b+6 A b^3-2 a^3 B-3 a b^2 B\right)}{2 a^3 \left(a^2+b^2\right) d (a+b \,\text{Tan}[c+d x])^2}+$$

$$\frac{(2 A b-a B) \,\text{Cot}[c+d x]}{a^2 d (a+b \,\text{Tan}[c+d x])^2}-\frac{A \,\text{Cot}[c+d x]^2}{2 a d (a+b \,\text{Tan}[c+d x])^2}+\frac{b \left(3 a^4 A b+11 a^2 A b^3+6 A b^5-a^5 B-6 a^3 b^2 B-3 a b^4 B\right)}{a^4 \left(a^2+b^2\right)^2 d (a+b \,\text{Tan}[c+d x])}$$

Result (type 3, 1923 leaves):

$$\Big(\big(-15\,\mathrm{i}\,a^{16}\,A\,b^4-15\,a^{15}\,A\,b^5-47\,\mathrm{i}\,a^{14}\,A\,b^6-47\,a^{13}\,A\,b^7-55\,\mathrm{i}\,a^{12}\,A\,b^8-55\,a^{11}\,A\,b^9-29\,\mathrm{i}\,a^{10}\,A\,b^{10}-29\,a^9\,A\,b^{11}-6\,\mathrm{i}\,a^8\,A\,b^{12}-6\,a^7\,A\,b^{13}+$$
$$10\,\mathrm{i}\,a^{17}\,b^3\,B+10\,a^{16}\,b^4\,B+29\,\mathrm{i}\,a^{15}\,b^5\,B+29\,a^{14}\,b^6\,B+31\,\mathrm{i}\,a^{13}\,b^7\,B+31\,a^{12}\,b^8\,B+15\,\mathrm{i}\,a^{11}\,b^9\,B+15\,a^{10}\,b^{10}\,B+3\,\mathrm{i}\,a^9\,b^{11}\,B+3\,a^8\,b^{12}\,B\big)$$
$$(c+d\,x)\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\Big)\Big/$$
$$\Big(a^{12}\,(a-\mathrm{i}\,b)^6\,(a+\mathrm{i}\,b)^5\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)-$$
$$\Big(\mathrm{i}\,\big(-15\,a^4\,A\,b^4-17\,a^2\,A\,b^6-6\,A\,b^8+10\,a^5\,b^3\,B+9\,a^3\,b^5\,B+3\,a\,b^7\,B\big)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$
$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\Big)\Big/\Big(a^5\,\big(a^2+b^2\big)^3\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)+$$
$$\Big(\big(-a^2\,A+6\,A\,b^2-3\,a\,b\,B\big)\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,\text{Log}[\text{Sin}[c+d\,x]]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\Big)\Big/$$
$$\Big(a^5\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)+$$
$$\Big(\big(-15\,a^4\,A\,b^4-17\,a^2\,A\,b^6-6\,A\,b^8+10\,a^5\,b^3\,B+9\,a^3\,b^5\,B+3\,a\,b^7\,B\big)\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]$$
$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\Big)\Big/\Big(2\,a^5\,\big(a^2+b^2\big)^3\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)+$$
$$\Big((B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\big(-2\,a^{10}\,A-2\,a^8\,A\,b^2+6\,a^6\,A\,b^4-6\,a^4\,A\,b^6-21\,a^2\,A\,b^8-9\,A\,b^{10}-2\,a^9\,b\,B-$$
$$6\,a^7\,b^3\,B+7\,a^5\,b^5\,B+17\,a^3\,b^7\,B+6\,a\,b^9\,B+3\,a^9\,A\,b\,(c+d\,x)+8\,a^7\,A\,b^3\,(c+d\,x)-3\,a^5\,A\,b^5\,(c+d\,x)-a^{10}\,B\,(c+d\,x)+9\,a^6\,b^4\,B\,(c+d\,x)-$$
$$2\,a^{10}\,A\,\text{Cos}[2\,(c+d\,x)]-4\,a^8\,A\,b^2\,\text{Cos}[2\,(c+d\,x)]+26\,a^4\,A\,b^6\,\text{Cos}[2\,(c+d\,x)]+36\,a^2\,A\,b^8\,\text{Cos}[2\,(c+d\,x)]+12\,A\,b^{10}\,\text{Cos}[2\,(c+d\,x)]-$$
$$18\,a^5\,b^5\,B\,\text{Cos}[2\,(c+d\,x)]-26\,a^3\,b^7\,B\,\text{Cos}[2\,(c+d\,x)]-8\,a\,b^9\,B\,\text{Cos}[2\,(c+d\,x)]-12\,a^7\,A\,b^3\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$4\,a^5\,A\,b^5\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+4\,a^8\,b^2\,B\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-12\,a^6\,b^4\,B\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-6\,a^8\,A\,b^2\,\text{Cos}[4\,(c+d\,x)]-$$
$$18\,a^6\,A\,b^4\,\text{Cos}[4\,(c+d\,x)]-24\,a^4\,A\,b^6\,\text{Cos}[4\,(c+d\,x)]-15\,a^2\,A\,b^8\,\text{Cos}[4\,(c+d\,x)]-3\,A\,b^{10}\,\text{Cos}[4\,(c+d\,x)]+2\,a^9\,b\,B\,\text{Cos}[4\,(c+d\,x)]+$$
$$6\,a^7\,b^3\,B\,\text{Cos}[4\,(c+d\,x)]+11\,a^5\,b^5\,B\,\text{Cos}[4\,(c+d\,x)]+9\,a^3\,b^7\,B\,\text{Cos}[4\,(c+d\,x)]+2\,a\,b^9\,B\,\text{Cos}[4\,(c+d\,x)]-3\,a^9\,A\,b\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+$$
$$4\,a^7\,A\,b^3\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-a^5\,A\,b^5\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+a^{10}\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-4\,a^8\,b^2\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+$$
$$3\,a^6\,b^4\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+2\,a^9\,A\,b\,\text{Sin}[2\,(c+d\,x)]+12\,a^7\,A\,b^3\,\text{Sin}[2\,(c+d\,x)]+12\,a^5\,A\,b^5\,\text{Sin}[2\,(c+d\,x)]+$$
$$2\,a^3\,A\,b^7\,\text{Sin}[2\,(c+d\,x)]-2\,a^{10}\,B\,\text{Sin}[2\,(c+d\,x)]-8\,a^8\,b^2\,B\,\text{Sin}[2\,(c+d\,x)]-2\,a^6\,b^4\,B\,\text{Sin}[2\,(c+d\,x)]+6\,a^4\,b^6\,B\,\text{Sin}[2\,(c+d\,x)]+$$
$$2\,a^2\,b^8\,B\,\text{Sin}[2\,(c+d\,x)]+12\,a^8\,A\,b^2\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-4\,a^6\,A\,b^4\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-4\,a^9\,b\,B\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]+$$
$$12\,a^7\,b^3\,B\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]+3\,a^9\,A\,b\,\text{Sin}[4\,(c+d\,x)]+6\,a^7\,A\,b^3\,\text{Sin}[4\,(c+d\,x)]+6\,a^5\,A\,b^5\,\text{Sin}[4\,(c+d\,x)]+3\,a^3\,A\,b^7\,\text{Sin}[4\,(c+d\,x)]-$$
$$a^{10}\,B\,\text{Sin}[4\,(c+d\,x)]-2\,a^8\,b^2\,B\,\text{Sin}[4\,(c+d\,x)]-5\,a^6\,b^4\,B\,\text{Sin}[4\,(c+d\,x)]-5\,a^4\,b^6\,B\,\text{Sin}[4\,(c+d\,x)]-a^2\,b^8\,B\,\text{Sin}[4\,(c+d\,x)]-6\,a^8\,A\,b^2$$
$$(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]+2\,a^6\,A\,b^4\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]+2\,a^9\,b\,B\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]-6\,a^7\,b^3\,B\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]\big)\Big)\Big/$$
$$\Big(8\,a^5\,(a-\mathrm{i}\,b)^3\,(a+\mathrm{i}\,b)^3\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)$$

- **Problem 290: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^4\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 351 leaves, 7 steps):

$$\frac{\big(a^4\,A-6\,a^2\,A\,b^2+A\,b^4+4\,a^3\,b\,B-4\,a\,b^3\,B\big)\,x}{\big(a^2+b^2\big)^4}+\frac{\big(4\,a^3\,A\,b-4\,a\,A\,b^3-a^4\,B+6\,a^2\,b^2\,B-b^4\,B\big)\,\text{Log}[\text{Cos}[c+d\,x]]}{\big(a^2+b^2\big)^4\,d}+$$
$$\frac{a\,\big(4\,a^2\,A\,b^5-4\,A\,b^7+a^7\,B+4\,a^5\,b^2\,B+5\,a^3\,b^4\,B+10\,a\,b^6\,B\big)\,\text{Log}[a+b\,\text{Tan}[c+d\,x]]}{b^4\,\big(a^2+b^2\big)^4\,d}+\frac{a\,(A\,b-a\,B)\,\text{Tan}[c+d\,x]^3}{3\,b\,\big(a^2+b^2\big)\,d\,(a+b\,\text{Tan}[c+d\,x])^3}+$$
$$\frac{a\,\big(2\,A\,b^3-a\,\big(a^2+3\,b^2\big)\,B\big)\,\text{Tan}[c+d\,x]^2}{2\,b^2\,\big(a^2+b^2\big)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+\frac{a^2\,\big(a^2\,A\,b^3-3\,A\,b^5+a^5\,B+3\,a^3\,b^2\,B+6\,a\,b^4\,B\big)}{b^4\,\big(a^2+b^2\big)^3\,d\,(a+b\,\text{Tan}[c+d\,x])}$$

Result (type 3, 1812 leaves):

$$\Big(\big(4\,\mathrm{i}\,a^{10} A b^8+4 a^9 A b^9+8\,\mathrm{i}\,a^8 A b^{10}+8 a^7 A b^{11}-8\,\mathrm{i}\,a^4 A b^{14}-8 a^3 A b^{15}-4\,\mathrm{i}\,a^2 A b^{16}-4 a A b^{17}+\mathrm{i}\,a^{15} b^3 B+a^{14} b^4 B+7\,\mathrm{i}\,a^{13} b^5 B+7 a^{12} b^6 B+$$

$$20\,\mathrm{i}\,a^{11} b^7 B+20 a^{10} b^8 B+38\,\mathrm{i}\,a^9 b^9 B+38 a^8 b^{10} B+49\,\mathrm{i}\,a^7 b^{11} B+49 a^6 b^{12} B+35\,\mathrm{i}\,a^5 b^{13} B+35 a^4 b^{14} B+10\,\mathrm{i}\,a^3 b^{15} B+10 a^2 b^{16} B\big)$$

$$(c+d x)\,\mathrm{Sec}[c+d x]^3\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])\Big)\Big/$$

$$\Big((a-\mathrm{i}\,b)^8\,(a+\mathrm{i}\,b)^7\,b^7\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^4\Big)-$$

$$\Big(\mathrm{i}\,\big(4 a^3 A b^5-4 a A b^7+a^8 B+4 a^6 b^2 B+5 a^4 b^4 B+10 a^2 b^6 B\big)\,\mathrm{ArcTan}[\mathrm{Tan}[c+d x]]\,\mathrm{Sec}[c+d x]^3\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4$$

$$(A+B\,\mathrm{Tan}[c+d x])\Big)\Big/\Big(b^4\,\big(a^2+b^2\big)^4\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^4\Big)-$$

$$\frac{B\,\mathrm{Log}[\mathrm{Cos}[c+d x]]\,\mathrm{Sec}[c+d x]^3\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])}{b^4\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^4}+$$

$$\Big(\big(4 a^3 A b^5-4 a A b^7+a^8 B+4 a^6 b^2 B+5 a^4 b^4 B+10 a^2 b^6 B\big)\,\mathrm{Log}\big[(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\big]\,\mathrm{Sec}[c+d x]^3$$

$$(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^4\,(A+B\,\mathrm{Tan}[c+d x])\Big)\Big/\Big(2\,b^4\,\big(a^2+b^2\big)^4\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^4\Big)+$$

$$\Big(\mathrm{Sec}[c+d x]^3\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,\big(12 a^6 A b^4\,\mathrm{Cos}[c+d x]+48 a^4 A b^6\,\mathrm{Cos}[c+d x]+36 a^2 A b^8\,\mathrm{Cos}[c+d x]-12 a^9 b B\,\mathrm{Cos}[c+d x]-$$

$$60 a^7 b^3 B\,\mathrm{Cos}[c+d x]-108 a^5 b^5 B\,\mathrm{Cos}[c+d x]-60 a^3 b^7 B\,\mathrm{Cos}[c+d x]+9 a^7 A b^3\,(c+d x)\,\mathrm{Cos}[c+d x]-45 a^5 A b^5\,(c+d x)\,\mathrm{Cos}[c+d x]-$$

$$45 a^3 A b^7\,(c+d x)\,\mathrm{Cos}[c+d x]+9 a A b^9\,(c+d x)\,\mathrm{Cos}[c+d x]+36 a^6 b^4 B\,(c+d x)\,\mathrm{Cos}[c+d x]-36 a^2 b^8 B\,(c+d x)\,\mathrm{Cos}[c+d x]+$$

$$8 a^6 A b^4\,\mathrm{Cos}[3\,(c+d x)]-28 a^4 A b^6\,\mathrm{Cos}[3\,(c+d x)]-36 a^2 A b^8\,\mathrm{Cos}[3\,(c+d x)]+6 a^9 b B\,\mathrm{Cos}[3\,(c+d x)]+28 a^7 b^3 B\,\mathrm{Cos}[3\,(c+d x)]+$$

$$82 a^5 b^5 B\,\mathrm{Cos}[3\,(c+d x)]+60 a^3 b^7 B\,\mathrm{Cos}[3\,(c+d x)]+3 a^7 A b^3\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-27 a^5 A b^5\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+$$

$$57 a^3 A b^7\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-9 a A b^9\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+12 a^6 b^4 B\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]-$$

$$48 a^4 b^6 B\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+36 a^2 b^8 B\,(c+d x)\,\mathrm{Cos}[3\,(c+d x)]+30 a^5 A b^5\,\mathrm{Sin}[c+d x]+84 a^3 A b^7\,\mathrm{Sin}[c+d x]+$$

$$54 a A b^9\,\mathrm{Sin}[c+d x]-3 a^{10} B\,\mathrm{Sin}[c+d x]-33 a^8 b^2 B\,\mathrm{Sin}[c+d x]-123 a^6 b^4 B\,\mathrm{Sin}[c+d x]-183 a^4 b^6 B\,\mathrm{Sin}[c+d x]-$$

$$90 a^2 b^8 B\,\mathrm{Sin}[c+d x]+9 a^6 A b^4\,(c+d x)\,\mathrm{Sin}[c+d x]-45 a^4 A b^6\,(c+d x)\,\mathrm{Sin}[c+d x]-45 a^2 A b^8\,(c+d x)\,\mathrm{Sin}[c+d x]+$$

$$9 A b^{10}\,(c+d x)\,\mathrm{Sin}[c+d x]+36 a^5 b^5 B\,(c+d x)\,\mathrm{Sin}[c+d x]-36 a b^9 B\,(c+d x)\,\mathrm{Sin}[c+d x]-4 a^7 A b^3\,\mathrm{Sin}[3\,(c+d x)]+$$

$$18 a^5 A b^5\,\mathrm{Sin}[3\,(c+d x)]+4 a^3 A b^7\,\mathrm{Sin}[3\,(c+d x)]-18 a A b^9\,\mathrm{Sin}[3\,(c+d x)]-3 a^{10} B\,\mathrm{Sin}[3\,(c+d x)]-11 a^8 b^2 B\,\mathrm{Sin}[3\,(c+d x)]-$$

$$27 a^6 b^4 B\,\mathrm{Sin}[3\,(c+d x)]+11 a^4 b^6 B\,\mathrm{Sin}[3\,(c+d x)]+30 a^2 b^8 B\,\mathrm{Sin}[3\,(c+d x)]+9 a^6 A b^4\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-$$

$$57 a^4 A b^6\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+27 a^2 A b^8\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-3 A b^{10}\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+$$

$$36 a^5 b^5 B\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]-48 a^3 b^7 B\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]+12 a b^9 B\,(c+d x)\,\mathrm{Sin}[3\,(c+d x)]\big)\,(A+B\,\mathrm{Tan}[c+d x])\Big)\Big/$$

$$\Big(12\,(a-\mathrm{i}\,b)^4\,(a+\mathrm{i}\,b)^4\,b^3\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^4\Big)$$

■ Problem 291: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Tan}[c+d x]^3\,(A+B\,\mathrm{Tan}[c+d x])}{(a+b\,\mathrm{Tan}[c+d x])^4}\,dx$$

Optimal (type 3, 298 leaves, 5 steps):

$$-\frac{\big(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\big)\,x}{\big(a^2+b^2\big)^4}+\frac{\big(a^4 A-6 a^2 A b^2+A b^4+4 a^3 b B-4 a b^3 B\big)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]]}{\big(a^2+b^2\big)^4\,d}+$$

$$\frac{a\,(A b-a B)\,\mathrm{Tan}[c+d x]^2}{3\,b\,\big(a^2+b^2\big)\,d\,(a+b\,\mathrm{Tan}[c+d x])^3}+\frac{a^2\,\big(a^2 A b-5 A b^3+2 a^3 B+8 a b^2 B\big)}{6\,b^3\,\big(a^2+b^2\big)^2\,d\,(a+b\,\mathrm{Tan}[c+d x])^2}-\frac{a\,\big(a^4 A b+5 a^2 A b^3-8 A b^5+2 a^5 B+7 a^3 b^2 B+17 a b^4 B\big)}{3\,b^3\,\big(a^2+b^2\big)^3\,d\,(a+b\,\mathrm{Tan}[c+d x])}$$

Result (type 3, 1586 leaves):

$$\Big(\big(\mathrm{i}\, a^{13} A + a^{12} A b - 3\,\mathrm{i}\, a^{11} A b^2 - 3 a^{10} A b^3 - 14\,\mathrm{i}\, a^9 A b^4 - 14 a^8 A b^5 - 14\,\mathrm{i}\, a^7 A b^6 - 14 a^6 A b^7 - 3\,\mathrm{i}\, a^5 A b^8 - 3 a^4 A b^9 + \mathrm{i}\, a^3 A b^{10} + a^2 A b^{11} + 4\,\mathrm{i}\, a^{12} b B + 4 a^{11} b^2 B + 8\,\mathrm{i}\, a^{10} b^3 B + 8 a^9 b^4 B - 8\,\mathrm{i}\, a^6 b^7 B - 8 a^5 b^8 B - 4\,\mathrm{i}\, a^4 b^9 B - 4 a^3 b^{10} B\big)\,(c + d x)\,\mathrm{Sec}[c + d x]^3\,(a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x])^4\,(A + B\,\mathrm{Tan}[c + d x])\Big) \Big/ \Big(a^2\,(a - \mathrm{i}\, b)^8\,(a + \mathrm{i}\, b)^7\, d\,(A\,\mathrm{Cos}[c + d x] + B\,\mathrm{Sin}[c + d x])\,(a + b\,\mathrm{Tan}[c + d x])^4\Big) - \Big(\mathrm{i}\,\big(a^4 A - 6 a^2 A b^2 + A b^4 + 4 a^3 b B - 4 a b^3 B\big)\,\mathrm{ArcTan}[\mathrm{Tan}[c + d x]]\,\mathrm{Sec}[c + d x]^3\,(a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x])^4\,(A + B\,\mathrm{Tan}[c + d x])\Big) \Big/ \Big(\big(a^2 + b^2\big)^4 d\,(A\,\mathrm{Cos}[c + d x] + B\,\mathrm{Sin}[c + d x])\,(a + b\,\mathrm{Tan}[c + d x])^4\Big) + \Big(\big(a^4 A - 6 a^2 A b^2 + A b^4 + 4 a^3 b B - 4 a b^3 B\big)\,\mathrm{Log}\big[(a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x])^2\big]\,\mathrm{Sec}[c + d x]^3\,(a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x])^4\,(A + B\,\mathrm{Tan}[c + d x])\Big) \Big/ \Big(2\,\big(a^2 + b^2\big)^4 d\,(A\,\mathrm{Cos}[c + d x] + B\,\mathrm{Sin}[c + d x])\,(a + b\,\mathrm{Tan}[c + d x])^4\Big) + \Big(\mathrm{Sec}[c + d x]^3\,(a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x])\,\big(6 a^7 A\,\mathrm{Cos}[c + d x] + 18 a^5 A b^2\,\mathrm{Cos}[c + d x] - 6 a^3 A b^4\,\mathrm{Cos}[c + d x] - 18 a A b^6\,\mathrm{Cos}[c + d x] + 12 a^6 b B\,\mathrm{Cos}[c + d x] + 48 a^4 b^3 B\,\mathrm{Cos}[c + d x] + 36 a^2 b^5 B\,\mathrm{Cos}[c + d x] - 36 a^6 A b\,(c + d x)\,\mathrm{Cos}[c + d x] + 36 a^2 A b^5\,(c + d x)\,\mathrm{Cos}[c + d x] + 9 a^7 B\,(c + d x)\,\mathrm{Cos}[c + d x] - 45 a^5 b^2 B\,(c + d x)\,\mathrm{Cos}[c + d x] - 45 a^3 b^4 B\,(c + d x)\,\mathrm{Cos}[c + d x] + 9 a b^6 B\,(c + d x)\,\mathrm{Cos}[c + d x] - 26 a^5 A b^2\,\mathrm{Cos}[3\,(c + d x)] - 8 a^3 A b^4\,\mathrm{Cos}[3\,(c + d x)] + 18 a A b^6\,\mathrm{Cos}[3\,(c + d x)] + 8 a^6 b B\,\mathrm{Cos}[3\,(c + d x)] - 28 a^4 b^3 B\,\mathrm{Cos}[3\,(c + d x)] - 36 a^2 b^5 B\,\mathrm{Cos}[3\,(c + d x)] - 12 a^6 A b\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] + 48 a^4 A b^3\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] - 36 a^2 A b^5\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] + 3 a^7 B\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] - 27 a^5 b^2 B\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] + 57 a^3 b^4 B\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] - 9 a b^6 B\,(c + d x)\,\mathrm{Cos}[3\,(c + d x)] + 15 a^6 A b\,\mathrm{Sin}[c + d x] + 27 a^4 A b^3\,\mathrm{Sin}[c + d x] - 15 a^2 A b^5\,\mathrm{Sin}[c + d x] - 27 A b^7\,\mathrm{Sin}[c + d x] + 30 a^5 b^2 B\,\mathrm{Sin}[c + d x] + 84 a^3 b^4 B\,\mathrm{Sin}[c + d x] + 54 a b^6 B\,\mathrm{Sin}[c + d x] - 36 a^5 A b^2\,(c + d x)\,\mathrm{Sin}[c + d x] + 36 a A b^6\,(c + d x)\,\mathrm{Sin}[c + d x] + 9 a^6 b B\,(c + d x)\,\mathrm{Sin}[c + d x] - 45 a^4 b^3 B\,(c + d x)\,\mathrm{Sin}[c + d x] - 45 a^2 b^5 B\,(c + d x)\,\mathrm{Sin}[c + d x] + 9 b^7 B\,(c + d x)\,\mathrm{Sin}[c + d x] + 13 a^6 A b\,\mathrm{Sin}[3\,(c + d x)] - 9 a^4 A b^3\,\mathrm{Sin}[3\,(c + d x)] - 13 a^2 A b^5\,\mathrm{Sin}[3\,(c + d x)] + 9 A b^7\,\mathrm{Sin}[3\,(c + d x)] - 4 a^7 B\,\mathrm{Sin}[3\,(c + d x)] + 18 a^5 b^2 B\,\mathrm{Sin}[3\,(c + d x)] + 4 a^3 b^4 B\,\mathrm{Sin}[3\,(c + d x)] - 18 a b^6 B\,\mathrm{Sin}[3\,(c + d x)] - 36 a^5 A b^2\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] + 48 a^3 A b^4\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] - 12 a A b^6\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] + 9 a^6 b B\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] - 57 a^4 b^3 B\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] + 27 a^2 b^5 B\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)] - 3 b^7 B\,(c + d x)\,\mathrm{Sin}[3\,(c + d x)]\big)\,(A + B\,\mathrm{Tan}[c + d x])\Big) \Big/ \Big(12\,(a - \mathrm{i}\, b)^4\,(a + \mathrm{i}\, b)^4\, d\,(A\,\mathrm{Cos}[c + d x] + B\,\mathrm{Sin}[c + d x])\,(a + b\,\mathrm{Tan}[c + d x])^4\Big)$$

- **Problem 292: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Tan}[c + d x]^2\,(A + B\,\mathrm{Tan}[c + d x])}{(a + b\,\mathrm{Tan}[c + d x])^4}\,dx$$

Optimal (type 3, 261 leaves, 5 steps):

$$-\frac{\big(a^4 A - 6 a^2 A b^2 + A b^4 + 4 a^3 b B - 4 a b^3 B\big)\, x}{\big(a^2 + b^2\big)^4} - \frac{\big(4 a^3 A b - 4 a A b^3 - a^4 B + 6 a^2 b^2 B - b^4 B\big)\,\mathrm{Log}[a\,\mathrm{Cos}[c + d x] + b\,\mathrm{Sin}[c + d x]]}{\big(a^2 + b^2\big)^4 d} - \frac{a^2\,(A b - a B)}{3 b^2\,\big(a^2 + b^2\big)\, d\,(a + b\,\mathrm{Tan}[c + d x])^3} + \frac{a\,\big(2 A b^3 - a\,\big(a^2 + 3 b^2\big) B\big)}{2 b^2\,\big(a^2 + b^2\big)^2 d\,(a + b\,\mathrm{Tan}[c + d x])^2} + \frac{3 a^2 A b - A b^3 - a^3 B + 3 a b^2 B}{\big(a^2 + b^2\big)^3 d\,(a + b\,\mathrm{Tan}[c + d x])}$$

Result (type 3, 1336 leaves):

$$\Big(A\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$
$$\Big(-3\,a\,b\,\left(a^2+b^2\right)\mathrm{Cos}[c+d\,x]+\left(-3\,a^3\,b+a\,b^3\right)\mathrm{Cos}[3\,(c+d\,x)]+\left(a^2-b^2\right)\left(3\,a^2+b^2+\left(3\,a^2-b^2\right)\mathrm{Cos}[2\,(c+d\,x)]\right)\mathrm{Sin}[c+d\,x]\Big)$$
$$(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(24\,a\,\left(a^2+b^2\right)^2 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)+\Big(B\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$
$$\Big(3\,a\,\left(a^2+b^2\right)\mathrm{Cos}[c+d\,x]+b\,\Big(-4\,a\,b\,\mathrm{Cos}[3\,(c+d\,x)]+\left(5\,a^2+b^2+4\,\left(a^2-b^2\right)\mathrm{Cos}[2\,(c+d\,x)]\right)\mathrm{Sin}[c+d\,x]\Big)\Big)\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/$$
$$\Big(24\,\left(a^2+b^2\right)^2 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)-$$

$$\frac{1}{24\,\left(a^2+b^2\right)^4 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4}$$
$$B\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,\Big(96\,a\,(a-b)\,b\,(a+b)\,(c+d\,x)-24\,i\,\left(a^4-6\,a^2\,b^2+b^4\right)(c+d\,x)+$$
$$24\,i\,\left(a^4-6\,a^2\,b^2+b^4\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]-12\,\left(a^4-6\,a^2\,b^2+b^4\right)\mathrm{Log}\big[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\big]+$$
$$\frac{4\,b\,\left(a^2-b^2\right)\left(a^2+b^2\right)^2\mathrm{Sin}[c+d\,x]}{(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}-\frac{2\,\left(a^2+b^2\right)\left(3\,a^4-16\,a^2\,b^2+b^4\right)}{(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{88\,b\,\left(-a^4+b^4\right)\mathrm{Sin}[c+d\,x]}{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}-$$
$$\Big(\left(a^2+b^2\right)^2\Big(3\,a\,\left(a^2+b^2\right)\mathrm{Cos}[c+d\,x]+b\,\Big(-4\,a\,b\,\mathrm{Cos}[3\,(c+d\,x)]+\left(5\,a^2+b^2+4\,\left(a^2-b^2\right)\mathrm{Cos}[2\,(c+d\,x)]\right)\mathrm{Sin}[c+d\,x]\Big)\Big)\Big)\Big/$$
$$(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\Big)\,(A+B\,\mathrm{Tan}[c+d\,x])-$$

$$\frac{1}{24\,a\,\left(a^2+b^2\right)^4 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4}\,A\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4$$
$$\Big(96\,i\,a^2\,b\,\left(a^2-b^2\right)(c+d\,x)-96\,i\,a^2\,b\,\left(a^2-b^2\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]+48\,a^2\,b\,\left(a^2-b^2\right)\mathrm{Log}\big[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\big]+$$
$$\frac{1}{(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3}\Big(6\,a\,\left(a^2+b^2\right)\left(2\,a^4\,b+8\,a^2\,b^3-2\,b^5+3\,a^5\,(c+d\,x)-18\,a^3\,b^2\,(c+d\,x)+3\,a\,b^4\,(c+d\,x)\right)\mathrm{Cos}[c+d\,x]+$$
$$a\,\left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^2\,b+11\,b^3+6\,a^3\,(c+d\,x)-18\,a\,b^2\,(c+d\,x)\right)\mathrm{Cos}[3\,(c+d\,x)]-$$
$$\Big(10\,a^8-63\,a^6\,b^2-105\,a^4\,b^4-21\,a^2\,b^6+11\,b^8-36\,a^7\,b\,(c+d\,x)+204\,a^5\,b^3\,(c+d\,x)+36\,a^3\,b^5\,(c+d\,x)-12\,a\,b^7\,(c+d\,x)+$$
$$\left(a^4-6\,a^2\,b^2+b^4\right)\left(11\,a^4-11\,b^4-36\,a^3\,b\,(c+d\,x)+12\,a\,b^3\,(c+d\,x)\right)\mathrm{Cos}[2\,(c+d\,x)]\Big)\mathrm{Sin}[c+d\,x]\Big)+$$
$$\Big(\left(a^2+b^2\right)^2\Big(-3\,a\,b\,\left(a^2+b^2\right)\mathrm{Cos}[c+d\,x]-2\,a\,b\,\left(a^2-b^2\right)\mathrm{Cos}[3\,(c+d\,x)]-3\,a^2\,b^2\,\mathrm{Sin}[c+d\,x]-3\,b^4\,\mathrm{Sin}[c+d\,x]+$$
$$a^4\,\mathrm{Sin}[3\,(c+d\,x)]-2\,a^2\,b^2\,\mathrm{Sin}[3\,(c+d\,x)]+b^4\,\mathrm{Sin}[3\,(c+d\,x)]\Big)\Big)\Big/(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\Big)\,(A+B\,\mathrm{Tan}[c+d\,x])$$

- **Problem 293: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 250 leaves, 5 steps) :

$$\frac{\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right) x}{\left(a^2+b^2\right)^4}-\frac{\left(a^4 A-6 a^2 A b^2+A b^4+4 a^3 b B-4 a b^3 B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^4 d}+$$

$$\frac{a (A b-a B)}{3 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^3}+\frac{a^2 A-A b^2+2 a b B}{2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}+\frac{a^3 A-3 a A b^2+3 a^2 b B-b^3 B}{\left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1355 leaves) :

$$\Big(A \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \left(3 a \left(a^2+b^2\right) \text{Cos}[c+d x]+b \left(-4 a b \text{Cos}[3 (c+d x)]+\left(5 a^2+b^2+4 \left(a^2-b^2\right) \text{Cos}[2 (c+d x)]\right) \text{Sin}[c+d x]\right)\right) (A+B \text{Tan}[c+d x])\Big)\Big/$$
$$\left(24 \left(a^2+b^2\right)^2 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^4\right)+$$
$$\Big(B \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \Big(-a^2 \left(a^2-3 b^2\right) \text{Cos}[c+d x]^2 \text{Sin}[c+d x]+$$
$$2 a b \text{Cos}[c+d x] \left(a^2-\left(a^2-3 b^2\right) \text{Sin}[c+d x]^2\right)+\text{Sin}[c+d x] \left(a^4+3 a^2 b^2+b^2 \left(-a^2+3 b^2\right) \text{Sin}[c+d x]^2\right)\Big) (A+B \text{Tan}[c+d x])\Big)\Big/$$
$$\left(12 a \left(a^2+b^2\right)^2 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^4\right)+\frac{1}{24 \left(a^2+b^2\right)^4 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^4}$$
$$A \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4 \Bigg(96 a (a-b) b (a+b) (c+d x)-24 i \left(a^4-6 a^2 b^2+b^4\right) (c+d x)+$$
$$24 i \left(a^4-6 a^2 b^2+b^4\right) \text{ArcTan}[\text{Tan}[c+d x]]-12 \left(a^4-6 a^2 b^2+b^4\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+$$
$$\frac{4 b \left(a^2-b^2\right) \left(a^2+b^2\right)^2 \text{Sin}[c+d x]}{(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}-\frac{2 \left(a^2+b^2\right) \left(3 a^4-16 a^2 b^2+b^4\right)}{(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{88 b \left(-a^4+b^4\right) \text{Sin}[c+d x]}{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}+$$
$$\left(\left(a^2+b^2\right)^2 \left(3 a \left(a^2+b^2\right) \text{Cos}[c+d x]+b \left(-4 a b \text{Cos}[3 (c+d x)]+\left(5 a^2+b^2+4 \left(a^2-b^2\right) \text{Cos}[2 (c+d x)]\right) \text{Sin}[c+d x]\right)\right)\right)\Big/$$
$$(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Bigg) (A+B \text{Tan}[c+d x])+$$
$$\frac{1}{24 a \left(a^2+b^2\right)^4 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^4} B \text{Sec}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4$$
$$\Bigg(-96 i a^2 b \left(a^2-b^2\right) (c+d x)+96 i a^2 b \left(a^2-b^2\right) \text{ArcTan}[\text{Tan}[c+d x]]-48 a^2 b \left(a^2-b^2\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]+$$
$$\frac{1}{(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}\Big(-6 a \left(a^2+b^2\right) \left(2 a^4 b+8 a^2 b^3-2 b^5+3 a^5 (c+d x)-18 a^3 b^2 (c+d x)+3 a b^4 (c+d x)\right) \text{Cos}[c+d x]-$$
$$a \left(a^4-6 a^2 b^2+b^4\right) \left(11 a^2 b+11 b^3+6 a^3 (c+d x)-18 a b^2 (c+d x)\right) \text{Cos}[3 (c+d x)]+$$
$$\Big(10 a^8-63 a^6 b^2-105 a^4 b^4-21 a^2 b^6+11 b^8-36 a^7 b (c+d x)+204 a^5 b^3 (c+d x)+36 a^3 b^5 (c+d x)-12 a b^7 (c+d x)+$$
$$\left(a^4-6 a^2 b^2+b^4\right) \left(11 a^4-11 b^4-36 a^3 b (c+d x)+12 a b^3 (c+d x)\right) \text{Cos}[2 (c+d x)]\Big) \text{Sin}[c+d x]\Big)+$$
$$\Big(\left(a^2+b^2\right)^2 \Big(-3 a b \left(a^2+b^2\right) \text{Cos}[c+d x]-2 a b \left(a^2-b^2\right) \text{Cos}[3 (c+d x)]-3 a^2 b^2 \text{Sin}[c+d x]-3 b^4 \text{Sin}[c+d x]+$$
$$a^4 \text{Sin}[3 (c+d x)]-2 a^2 b^2 \text{Sin}[3 (c+d x)]+b^4 \text{Sin}[3 (c+d x)]\Big)\Big)\Big/(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\Bigg) (A+B \text{Tan}[c+d x])$$

Problem 294: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 247 leaves, 5 steps):

$$\frac{\left(a^4 A-6 a^2 A b^2+A b^4+4 a^3 b B-4 a b^3 B\right) x}{\left(a^2+b^2\right)^4}+\frac{\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right) \mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^4 d}-\frac{A b-a B}{3\left(a^2+b^2\right) d\,(a+b\,\mathrm{Tan}[c+d\,x])^3}-\frac{2 a A b-a^2 B+b^2 B}{2\left(a^2+b^2\right)^2 d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-\frac{3 a^2 A b-A b^3-a^3 B+3 a b^2 B}{\left(a^2+b^2\right)^3 d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 1585 leaves):

$$\Big(\big(4\,i\,a^{12} A b+4 a^{11} A b^2+8\,i\,a^{10} A b^3+8 a^9 A b^4-8\,i\,a^6 A b^7-8 a^5 A b^8-4\,i\,a^4 A b^9-4 a^3 A b^{10}-i\,a^{13} B-a^{12} b B+3\,i\,a^{11} b^2 B+3 a^{10} b^3 B+14\,i\,a^9 b^4 B+14 a^8 b^5 B+14\,i\,a^7 b^6 B+14 a^6 b^7 B+3\,i\,a^5 b^8 B+3 a^4 b^9 B-i\,a^3 b^{10} B-a^2 b^{11} B\big)\,(c+d\,x)\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(a^2\,(a-i\,b)^8\,(a+i\,b)^7\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)-$$
$$\Big(i\,\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right)\mathrm{ArcTan}[\mathrm{Tan}[c+d\,x]]\,\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(\left(a^2+b^2\right)^4 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)+$$
$$\Big(\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right)\mathrm{Log}\left[(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right]\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(2\left(a^2+b^2\right)^4 d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)+$$
$$\Big(\mathrm{Sec}[c+d\,x]^3\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\big(12 a^5 A b^3\,\mathrm{Cos}[c+d\,x]-12 a A b^7\,\mathrm{Cos}[c+d\,x]+24 a^4 b^4 B\,\mathrm{Cos}[c+d\,x]+24 a^2 b^6 B\,\mathrm{Cos}[c+d\,x]+9 a^8 A\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]-45 a^6 A b^2\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]-45 a^4 A b^4\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]+9 a^2 A b^6\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]+36 a^7 b B\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]-36 a^3 b^5 B\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]-36 a^5 A b^3\,\mathrm{Cos}[3\,(c+d\,x)]-28 a^3 A b^5\,\mathrm{Cos}[3\,(c+d\,x)]+8 a A b^7\,\mathrm{Cos}[3\,(c+d\,x)]+18 a^6 b^2 B\,\mathrm{Cos}[3\,(c+d\,x)]-8 a^4 b^4 B\,\mathrm{Cos}[3\,(c+d\,x)]-26 a^2 b^6 B\,\mathrm{Cos}[3\,(c+d\,x)]+3 a^8 A\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]-27 a^6 A b^2\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]+57 a^4 A b^4\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]-9 a^2 A b^6\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]+12 a^7 b B\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]-48 a^5 b^3 B\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]+36 a^3 b^5 B\,(c+d\,x)\,\mathrm{Cos}[3\,(c+d\,x)]+18 a^6 A b^2\,\mathrm{Sin}[c+d\,x]+48 a^4 A b^4\,\mathrm{Sin}[c+d\,x]+18 a^2 A b^6\,\mathrm{Sin}[c+d\,x]-12 A b^8\,\mathrm{Sin}[c+d\,x]-9 a^7 b B\,\mathrm{Sin}[c+d\,x]-9 a^5 b^3 B\,\mathrm{Sin}[c+d\,x]+33 a^3 b^5 B\,\mathrm{Sin}[c+d\,x]+33 a b^7 B\,\mathrm{Sin}[c+d\,x]+9 a^7 A b\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-45 a^5 A b^3\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-45 a^3 A b^5\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+9 a A b^7\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+36 a^6 b^2 B\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]-36 a^2 b^6 B\,(c+d\,x)\,\mathrm{Sin}[c+d\,x]+18 a^6 A b^2\,\mathrm{Sin}[3\,(c+d\,x)]-4 a^4 A b^4\,\mathrm{Sin}[3\,(c+d\,x)]-18 a^2 A b^6\,\mathrm{Sin}[3\,(c+d\,x)]+4 A b^8\,\mathrm{Sin}[3\,(c+d\,x)]-9 a^7 b B\,\mathrm{Sin}[3\,(c+d\,x)]+13 a^5 b^3 B\,\mathrm{Sin}[3\,(c+d\,x)]+9 a^3 b^5 B\,\mathrm{Sin}[3\,(c+d\,x)]-13 a b^7 B\,\mathrm{Sin}[3\,(c+d\,x)]+9 a^7 A b\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]-57 a^5 A b^3\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]+27 a^3 A b^5\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]-3 a A b^7\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]+36 a^6 b^2 B\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]-48 a^4 b^4 B\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]+12 a^2 b^6 B\,(c+d\,x)\,\mathrm{Sin}[3\,(c+d\,x)]\big)\,(A+B\,\mathrm{Tan}[c+d\,x])\Big)\Big/\Big(12 a\,(a-i\,b)^4\,(a+i\,b)^4\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^4\Big)$$

Problem 295: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Cot}[c+d\,x]\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 302 leaves, 6 steps):

$$-\frac{\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right) x}{\left(a^2+b^2\right)^4}+\frac{A \,\text{Log}[\text{Sin}[c+d x]]}{a^4 d}-$$

$$\frac{b \left(10 a^6 A b+5 a^4 A b^3+4 a^2 A b^5+A b^7-4 a^7 B+4 a^5 b^2 B\right) \text{Log}[a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]]}{a^4 \left(a^2+b^2\right)^4 d}+$$

$$\frac{b (A b-a B)}{3 a \left(a^2+b^2\right) d (a+b \,\text{Tan}[c+d x])^3}+\frac{b \left(3 a^2 A b+A b^3-2 a^3 B\right)}{2 a^2 \left(a^2+b^2\right)^2 d (a+b \,\text{Tan}[c+d x])^2}+\frac{b \left(6 a^4 A b+3 a^2 A b^3+A b^5-3 a^5 B+a^3 b^2 B\right)}{a^3 \left(a^2+b^2\right)^3 d (a+b \,\text{Tan}[c+d x])}$$

Result (type 3, 1818 leaves):

$$\Big(\big(-10 \mathrm{i} a^{19} A b^2-10 a^{18} A b^3-35 \mathrm{i} a^{17} A b^4-35 a^{16} A b^5-49 \mathrm{i} a^{15} A b^6-49 a^{14} A b^7-38 \mathrm{i} a^{13} A b^8-38 a^{12} A b^9-20 \mathrm{i} a^{11} A b^{10}-20 a^{10} A b^{11}-7 \mathrm{i} a^9 A b^{12}-$$
$$7 a^8 A b^{13}-\mathrm{i} a^7 A b^{14}-a^6 A b^{15}+4 \mathrm{i} a^{20} b B+4 a^{19} b^2 B+8 \mathrm{i} a^{18} b^3 B+8 a^{17} b^4 B-8 \mathrm{i} a^{14} b^7 B-8 a^{13} b^8 B-4 \mathrm{i} a^{12} b^9 B-4 a^{11} b^{10} B\big)$$
$$(c+d x) \,\text{Sec}[c+d x]^3 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^4 (A+B \,\text{Tan}[c+d x])\Big) \Big/$$
$$\left(a^{10} (a-\mathrm{i} b)^8 (a+\mathrm{i} b)^7 d (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x]) (a+b \,\text{Tan}[c+d x])^4\right)-$$
$$\Big(\mathrm{i} \left(-10 a^6 A b^2-5 a^4 A b^4-4 a^2 A b^6-A b^8+4 a^7 b B-4 a^5 b^3 B\right) \text{ArcTan}[\text{Tan}[c+d x]] \,\text{Sec}[c+d x]^3$$
$$(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^4 (A+B \,\text{Tan}[c+d x])\Big) \Big/ \left(a^4 \left(a^2+b^2\right)^4 d (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x]) (a+b \,\text{Tan}[c+d x])^4\right)+$$
$$\frac{A \,\text{Log}[\text{Sin}[c+d x]] \,\text{Sec}[c+d x]^3 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^4 (A+B \,\text{Tan}[c+d x])}{a^4 d (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x]) (a+b \,\text{Tan}[c+d x])^4}+$$
$$\Big(\left(-10 a^6 A b^2-5 a^4 A b^4-4 a^2 A b^6-A b^8+4 a^7 b B-4 a^5 b^3 B\right) \text{Log}\left[(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2\right] \text{Sec}[c+d x]^3$$
$$(a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^4 (A+B \,\text{Tan}[c+d x])\Big) \Big/ \left(2 a^4 \left(a^2+b^2\right)^4 d (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x]) (a+b \,\text{Tan}[c+d x])^4\right)+$$
$$\Big(\text{Sec}[c+d x]^3 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]) \big(-30 a^7 A b^4 \,\text{Cos}[c+d x]-42 a^5 A b^6 \,\text{Cos}[c+d x]-18 a^3 A b^8 \,\text{Cos}[c+d x]-$$
$$6 a A b^{10} \,\text{Cos}[c+d x]+12 a^8 b^3 B \,\text{Cos}[c+d x]-12 a^4 b^7 B \,\text{Cos}[c+d x]-36 a^{10} A b (c+d x) \,\text{Cos}[c+d x]+36 a^6 A b^5 (c+d x) \,\text{Cos}[c+d x]+$$
$$9 a^{11} B (c+d x) \,\text{Cos}[c+d x]-45 a^9 b^2 B (c+d x) \,\text{Cos}[c+d x]-45 a^7 b^4 B (c+d x) \,\text{Cos}[c+d x]+9 a^5 b^6 B (c+d x) \,\text{Cos}[c+d x]+$$
$$60 a^7 A b^4 \,\text{Cos}[3 (c+d x)]+82 a^5 A b^6 \,\text{Cos}[3 (c+d x)]+28 a^3 A b^8 \,\text{Cos}[3 (c+d x)]+6 a A b^{10} \,\text{Cos}[3 (c+d x)]-36 a^8 b^3 B \,\text{Cos}[3 (c+d x)]-$$
$$28 a^6 b^5 B \,\text{Cos}[3 (c+d x)]+8 a^4 b^7 B \,\text{Cos}[3 (c+d x)]-12 a^{10} A b (c+d x) \,\text{Cos}[3 (c+d x)]+48 a^8 A b^3 (c+d x) \,\text{Cos}[3 (c+d x)]-$$
$$36 a^6 A b^5 (c+d x) \,\text{Cos}[3 (c+d x)]+3 a^{11} B (c+d x) \,\text{Cos}[3 (c+d x)]-27 a^9 b^2 B (c+d x) \,\text{Cos}[3 (c+d x)]+$$
$$57 a^7 b^4 B (c+d x) \,\text{Cos}[3 (c+d x)]-9 a^5 b^6 B (c+d x) \,\text{Cos}[3 (c+d x)]-30 a^8 A b^3 \,\text{Sin}[c+d x]-105 a^6 A b^5 \,\text{Sin}[c+d x]-$$
$$105 a^4 A b^7 \,\text{Sin}[c+d x]-39 a^2 A b^9 \,\text{Sin}[c+d x]-9 A b^{11} \,\text{Sin}[c+d x]+18 a^9 b^2 B \,\text{Sin}[c+d x]+48 a^7 b^4 B \,\text{Sin}[c+d x]+18 a^5 b^6 B \,\text{Sin}[c+d x]-$$
$$12 a^3 b^8 B \,\text{Sin}[c+d x]-36 a^9 A b^2 (c+d x) \,\text{Sin}[c+d x]+36 a^5 A b^6 (c+d x) \,\text{Sin}[c+d x]+9 a^{10} b B (c+d x) \,\text{Sin}[c+d x]-$$
$$45 a^8 b^3 B (c+d x) \,\text{Sin}[c+d x]-45 a^6 b^5 B (c+d x) \,\text{Sin}[c+d x]+9 a^4 b^7 B (c+d x) \,\text{Sin}[c+d x]-30 a^8 A b^3 \,\text{Sin}[3 (c+d x)]-$$
$$11 a^6 A b^5 \,\text{Sin}[3 (c+d x)]+27 a^4 A b^7 \,\text{Sin}[3 (c+d x)]+11 a^2 A b^9 \,\text{Sin}[3 (c+d x)]+3 A b^{11} \,\text{Sin}[3 (c+d x)]+18 a^9 b^2 B \,\text{Sin}[3 (c+d x)]-$$
$$4 a^7 b^4 B \,\text{Sin}[3 (c+d x)]-18 a^5 b^6 B \,\text{Sin}[3 (c+d x)]+4 a^3 b^8 B \,\text{Sin}[3 (c+d x)]-36 a^9 A b^2 (c+d x) \,\text{Sin}[3 (c+d x)]+$$
$$48 a^7 A b^4 (c+d x) \,\text{Sin}[3 (c+d x)]-12 a^5 A b^6 (c+d x) \,\text{Sin}[3 (c+d x)]+9 a^{10} b B (c+d x) \,\text{Sin}[3 (c+d x)]-$$
$$57 a^8 b^3 B (c+d x) \,\text{Sin}[3 (c+d x)]+27 a^6 b^5 B (c+d x) \,\text{Sin}[3 (c+d x)]-3 a^4 b^7 B (c+d x) \,\text{Sin}[3 (c+d x)]\big) (A+B \,\text{Tan}[c+d x])\Big) \Big/$$
$$\left(12 a^4 (a-\mathrm{i} b)^4 (a+\mathrm{i} b)^4 d (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x]) (a+b \,\text{Tan}[c+d x])^4\right)$$

- **Problem 296: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \,\text{Tan}[c+d x])}{(a+b \,\text{Tan}[c+d x])^4} \, dx$$

Optimal (type 3, 399 leaves, 7 steps) :

$$-\frac{\left(a^4 A-6 a^2 A b^2+A b^4+4 a^3 b B-4 a b^3 B\right) x}{\left(a^2+b^2\right)^4}-\frac{(4 A b-a B) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^5 d}+\frac{1}{a^5 \left(a^2+b^2\right)^4 d}$$

$$b^2 \left(20 a^6 A b+24 a^4 A b^3+16 a^2 A b^5+4 A b^7-10 a^7 B-5 a^5 b^2 B-4 a^3 b^4 B-a b^6 B\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]-$$

$$\frac{b \left(3 a^2 A+4 A b^2-a b B\right)}{3 a^2 \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^3}-\frac{A \operatorname{Cot}[c+d x]}{a d (a+b \operatorname{Tan}[c+d x])^3}-\frac{b \left(2 a^4 A+8 a^2 A b^2+4 A b^4-3 a^3 b B-a b^3 B\right)}{2 a^3 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])^2}-$$

$$\frac{b \left(a^6 A+13 a^4 A b^2+12 a^2 A b^4+4 A b^6-6 a^5 b B-3 a^3 b^3 B-a b^5 B\right)}{a^4 \left(a^2+b^2\right)^3 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 2351 leaves) :

$$\Big(\big(20\,i\,a^{20}\,A\,b^3+20\,a^{19}\,A\,b^4+84\,i\,a^{18}\,A\,b^5+84\,a^{17}\,A\,b^6+148\,i\,a^{16}\,A\,b^7+148\,a^{15}\,A\,b^8+144\,i\,a^{14}\,A\,b^9+144\,a^{13}\,A\,b^{10}+84\,i\,a^{12}\,A\,b^{11}+$$
$$84\,a^{11}\,A\,b^{12}+28\,i\,a^{10}\,A\,b^{13}+28\,a^9\,A\,b^{14}+4\,i\,a^8\,A\,b^{15}+4\,a^7\,A\,b^{16}-10\,i\,a^{21}\,b^2\,B-10\,a^{20}\,b^3\,B-35\,i\,a^{19}\,b^4\,B-35\,a^{18}\,b^5\,B-$$
$$49\,i\,a^{17}\,b^6\,B-49\,a^{16}\,b^7\,B-38\,i\,a^{15}\,b^8\,B-38\,a^{14}\,b^9\,B-20\,i\,a^{13}\,b^{10}\,B-20\,a^{12}\,b^{11}\,B-7\,i\,a^{11}\,b^{12}\,B-7\,a^{10}\,b^{13}\,B-i\,a^9\,b^{14}\,B-a^8\,b^{15}\,B\big)$$
$$(c+d\,x)\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4\Big)\Big/$$
$$\Big(a^{12}\,(a-i\,b)^8\,(a+i\,b)^7\,d\,(b+a\,\text{Cot}[c+d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)-$$
$$\Big(i\,\big(20\,a^6\,A\,b^3+24\,a^4\,A\,b^5+16\,a^2\,A\,b^7+4\,A\,b^9-10\,a^7\,b^2\,B-5\,a^5\,b^4\,B-4\,a^3\,b^6\,B-a\,b^8\,B\big)$$
$$\text{ArcTan}[\text{Tan}[c+d\,x]]\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4\Big)\Big/$$
$$\Big(a^5\,\big(a^2+b^2\big)^4\,d\,(b+a\,\text{Cot}[c+d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)+$$
$$\frac{(-4\,A\,b+a\,B)\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Log}[\text{Sin}[c+d\,x]]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4}{a^5\,d\,(b+a\,\text{Cot}[c+d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$
$$\Big(\big(20\,a^6\,A\,b^3+24\,a^4\,A\,b^5+16\,a^2\,A\,b^7+4\,A\,b^9-10\,a^7\,b^2\,B-5\,a^5\,b^4\,B-4\,a^3\,b^6\,B-a\,b^8\,B\big)$$
$$(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Log}\big[(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\big]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^4\Big)\Big/$$
$$\Big(2\,a^5\,\big(a^2+b^2\big)^4\,d\,(b+a\,\text{Cot}[c+d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)+$$
$$\Big((B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^4\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])$$
$$\big(-9\,a^{12}\,A-45\,a^{10}\,A\,b^2-45\,a^8\,A\,b^4+90\,a^6\,A\,b^6+183\,a^4\,A\,b^8+111\,a^2\,A\,b^{10}+27\,A\,b^{12}-30\,a^9\,b^3\,B-105\,a^7\,b^5\,B-105\,a^5\,b^7\,B-39\,a^3\,b^9\,B-$$
$$9\,a\,b^{11}\,B-9\,a^{11}\,A\,b\,(c+d\,x)+45\,a^9\,A\,b^3\,(c+d\,x)+45\,a^7\,A\,b^5\,(c+d\,x)-9\,a^5\,A\,b^7\,(c+d\,x)-36\,a^{10}\,b^2\,B\,(c+d\,x)+36\,a^6\,b^6\,B\,(c+d\,x)-$$
$$12\,a^{12}\,A\,\text{Cos}[2\,(c+d\,x)]-48\,a^{10}\,A\,b^2\,\text{Cos}[2\,(c+d\,x)]-72\,a^8\,A\,b^4\,\text{Cos}[2\,(c+d\,x)]-196\,a^6\,A\,b^6\,\text{Cos}[2\,(c+d\,x)]-276\,a^4\,A\,b^8\,\text{Cos}[2\,(c+d\,x)]-$$
$$152\,a^2\,A\,b^{10}\,\text{Cos}[2\,(c+d\,x)]-36\,A\,b^{12}\,\text{Cos}[2\,(c+d\,x)]+94\,a^7\,b^5\,B\,\text{Cos}[2\,(c+d\,x)]+132\,a^5\,b^7\,B\,\text{Cos}[2\,(c+d\,x)]+$$
$$50\,a^3\,b^9\,B\,\text{Cos}[2\,(c+d\,x)]+12\,a\,b^{11}\,B\,\text{Cos}[2\,(c+d\,x)]+12\,a^9\,A\,b^3\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-72\,a^7\,A\,b^5\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+$$
$$12\,a^5\,A\,b^7\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]+48\,a^8\,b^4\,B\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-48\,a^6\,b^6\,B\,(c+d\,x)\,\text{Cos}[2\,(c+d\,x)]-3\,a^{12}\,A\,\text{Cos}[4\,(c+d\,x)]-$$
$$3\,a^{10}\,A\,b^2\,\text{Cos}[4\,(c+d\,x)]-27\,a^8\,A\,b^4\,\text{Cos}[4\,(c+d\,x)]+10\,a^6\,A\,b^6\,\text{Cos}[4\,(c+d\,x)]+69\,a^4\,A\,b^8\,\text{Cos}[4\,(c+d\,x)]+41\,a^2\,A\,b^{10}\,\text{Cos}[4\,(c+d\,x)]+$$
$$9\,A\,b^{12}\,\text{Cos}[4\,(c+d\,x)]+30\,a^9\,b^3\,B\,\text{Cos}[4\,(c+d\,x)]+11\,a^7\,b^5\,B\,\text{Cos}[4\,(c+d\,x)]-27\,a^5\,b^7\,B\,\text{Cos}[4\,(c+d\,x)]-11\,a^3\,b^9\,B\,\text{Cos}[4\,(c+d\,x)]-$$
$$3\,a\,b^{11}\,B\,\text{Cos}[4\,(c+d\,x)]+9\,a^{11}\,A\,b\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-57\,a^9\,A\,b^3\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+27\,a^7\,A\,b^5\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-$$
$$3\,a^5\,A\,b^7\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+36\,a^{10}\,b^2\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-48\,a^8\,b^4\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]+$$
$$12\,a^6\,b^6\,B\,(c+d\,x)\,\text{Cos}[4\,(c+d\,x)]-18\,a^{11}\,A\,b\,\text{Sin}[2\,(c+d\,x)]-78\,a^9\,A\,b^3\,\text{Sin}[2\,(c+d\,x)]+12\,a^7\,A\,b^5\,\text{Sin}[2\,(c+d\,x)]+$$
$$148\,a^5\,A\,b^7\,\text{Sin}[2\,(c+d\,x)]+106\,a^3\,A\,b^9\,\text{Sin}[2\,(c+d\,x)]+30\,a\,A\,b^{11}\,\text{Sin}[2\,(c+d\,x)]-90\,a^8\,b^4\,B\,\text{Sin}[2\,(c+d\,x)]-124\,a^6\,b^6\,B\,\text{Sin}[2\,(c+d\,x)]-$$
$$46\,a^4\,b^8\,B\,\text{Sin}[2\,(c+d\,x)]-12\,a^2\,b^{10}\,B\,\text{Sin}[2\,(c+d\,x)]-6\,a^{12}\,A\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]+18\,a^{10}\,A\,b^2\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]+$$
$$102\,a^8\,A\,b^4\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-18\,a^6\,A\,b^6\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-24\,a^{11}\,b\,B\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-$$
$$48\,a^9\,b^3\,B\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]+72\,a^7\,b^5\,B\,(c+d\,x)\,\text{Sin}[2\,(c+d\,x)]-9\,a^{11}\,A\,b\,\text{Sin}[4\,(c+d\,x)]-33\,a^9\,A\,b^3\,\text{Sin}[4\,(c+d\,x)]-$$
$$132\,a^7\,A\,b^5\,\text{Sin}[4\,(c+d\,x)]-172\,a^5\,A\,b^7\,\text{Sin}[4\,(c+d\,x)]-79\,a^3\,A\,b^9\,\text{Sin}[4\,(c+d\,x)]-15\,a\,A\,b^{11}\,\text{Sin}[4\,(c+d\,x)]+60\,a^8\,b^4\,B\,\text{Sin}[4\,(c+d\,x)]+$$
$$82\,a^6\,b^6\,B\,\text{Sin}[4\,(c+d\,x)]+28\,a^4\,b^8\,B\,\text{Sin}[4\,(c+d\,x)]+6\,a^2\,b^{10}\,B\,\text{Sin}[4\,(c+d\,x)]-3\,a^{12}\,A\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]+$$
$$27\,a^{10}\,A\,b^2\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]-57\,a^8\,A\,b^4\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]+9\,a^6\,A\,b^6\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]-$$
$$12\,a^{11}\,b\,B\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]+48\,a^9\,b^3\,B\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]-36\,a^7\,b^5\,B\,(c+d\,x)\,\text{Sin}[4\,(c+d\,x)]\big)\Big)\Big/$$
$$\Big(24\,a^5\,(a-i\,b)^4\,(a+i\,b)^4\,d\,(b+a\,\text{Cot}[c+d\,x])^4\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\Big)$$

- **Problem 297: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^3\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 3, 477 leaves, 8 steps):

$$\frac{\left(4 a^3 A b-4 a A b^3-a^4 B+6 a^2 b^2 B-b^4 B\right) x}{\left(a^2+b^2\right)^4}-\frac{\left(a^2 A-10 A b^2+4 a b B\right) \text{Log}[\text{Sin}[c+d x]]}{a^6 d}-\frac{1}{a^6 \left(a^2+b^2\right)^4 d}$$

$$b^3 \left(35 a^6 A b+56 a^4 A b^3+39 a^2 A b^5+10 A b^7-20 a^7 B-24 a^5 b^2 B-16 a^3 b^4 B-4 a b^6 B\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+$$

$$\frac{b \left(9 a^2 A b+10 A b^3-3 a^3 B-4 a b^2 B\right)}{3 a^3 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^3}+\frac{(5 A b-2 a B) \text{Cot}[c+d x]}{2 a^2 d (a+b \text{Tan}[c+d x])^3}-\frac{A \text{Cot}[c+d x]^2}{2 a d (a+b \text{Tan}[c+d x])^3}+$$

$$\frac{b \left(7 a^4 A b+19 a^2 A b^3+10 A b^5-2 a^5 B-8 a^3 b^2 B-4 a b^4 B\right)}{2 a^4 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])^2}+\frac{b \left(4 a^6 A b+27 a^4 A b^3+29 a^2 A b^5+10 A b^7-a^7 B-13 a^5 b^2 B-12 a^3 b^4 B-4 a b^6 B\right)}{a^5 \left(a^2+b^2\right)^3 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 3045 leaves):

$$\Big(\Big(-35 i a^{21} A b^4-35 a^{20} A b^5-161 i a^{19} A b^6-161 a^{18} A b^7-312 i a^{17} A b^8-312 a^{16} A b^9-330 i a^{15} A b^{10}-330 a^{14} A b^{11}-203 i a^{13} A b^{12}-203 a^{12} A b^{13}-$$
$$69 i a^{11} A b^{14}-69 a^{10} A b^{15}-10 i a^9 A b^{16}-10 a^8 A b^{17}+20 i a^{22} b^3 B+20 a^{21} b^4 B+84 i a^{20} b^5 B+84 a^{19} b^6 B+148 i a^{18} b^7 B+$$
$$148 a^{17} b^8 B+144 i a^{16} b^9 B+144 a^{15} b^{10} B+84 i a^{14} b^{11} B+84 a^{13} b^{12} B+28 i a^{12} b^{13} B+28 a^{11} b^{14} B+4 i a^{10} b^{15} B+4 a^9 b^{16} B\Big)$$
$$(c+d x) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\Big)\Big/$$
$$\left(a^{14} (a-i b)^8 (a+i b)^7 d (b+a \text{Cot}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)-$$
$$\Big(i \left(-35 a^6 A b^4-56 a^4 A b^6-39 a^2 A b^8-10 A b^{10}+20 a^7 b^3 B+24 a^5 b^5 B+16 a^3 b^7 B+4 a b^9 B\right)$$
$$\text{ArcTan}[\text{Tan}[c+d x]] (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^3 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\Big)\Big/$$
$$\left(a^6 \left(a^2+b^2\right)^4 d (b+a \text{Cot}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\left(\left(-a^2 A+10 A b^2-4 a b B\right) (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^3 \text{Log}[\text{Sin}[c+d x]] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\right)\Big/$$
$$\left(a^6 d (b+a \text{Cot}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\Big(\left(-35 a^6 A b^4-56 a^4 A b^6-39 a^2 A b^8-10 A b^{10}+20 a^7 b^3 B+24 a^5 b^5 B+16 a^3 b^7 B+4 a b^9 B\right) (B+A \text{Cot}[c+d x])$$
$$\text{Csc}[c+d x]^3 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^4\Big)\Big/$$
$$\left(2 a^6 \left(a^2+b^2\right)^4 d (b+a \text{Cot}[c+d x])^4 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\Big((B+A \text{Cot}[c+d x]) \text{Csc}[c+d x]^5 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])$$
$$\Big(-18 a^{13} A \text{Cos}[c+d x]-18 a^{11} A b^2 \text{Cos}[c+d x]+132 a^9 A b^4 \text{Cos}[c+d x]+138 a^7 A b^6 \text{Cos}[c+d x]-82 a^5 A b^8 \text{Cos}[c+d x]-$$
$$136 a^3 A b^{10} \text{Cos}[c+d x]-48 a A b^{12} \text{Cos}[c+d x]-18 a^{12} b B \text{Cos}[c+d x]-78 a^{10} b^3 B \text{Cos}[c+d x]+12 a^8 b^5 B \text{Cos}[c+d x]+$$
$$148 a^6 b^7 B \text{Cos}[c+d x]+106 a^4 b^9 B \text{Cos}[c+d x]+30 a^2 b^{11} B \text{Cos}[c+d x]+24 a^{12} A b (c+d x) \text{Cos}[c+d x]+48 a^{10} A b^3 (c+d x) \text{Cos}[c+d x]-$$
$$72 a^8 A b^5 (c+d x) \text{Cos}[c+d x]-6 a^{13} B (c+d x) \text{Cos}[c+d x]+18 a^{11} b^2 B (c+d x) \text{Cos}[c+d x]+102 a^9 b^4 B (c+d x) \text{Cos}[c+d x]-$$
$$18 a^7 b^6 B (c+d x) \text{Cos}[c+d x]-6 a^{13} A \text{Cos}[3 (c+d x)]-42 a^{11} A b^2 \text{Cos}[3 (c+d x)]-144 a^9 A b^4 \text{Cos}[3 (c+d x)]+$$
$$60 a^7 A b^6 \text{Cos}[3 (c+d x)]+374 a^5 A b^8 \text{Cos}[3 (c+d x)]+278 a^3 A b^{10} \text{Cos}[3 (c+d x)]+72 a A b^{12} \text{Cos}[3 (c+d x)]+9 a^{12} b B \text{Cos}[3 (c+d x)]+$$
$$45 a^{10} b^3 B \text{Cos}[3 (c+d x)]-144 a^8 b^5 B \text{Cos}[3 (c+d x)]-320 a^6 b^7 B \text{Cos}[3 (c+d x)]-185 a^4 b^9 B \text{Cos}[3 (c+d x)]-$$
$$45 a^2 b^{11} B \text{Cos}[3 (c+d x)]-12 a^{12} A b (c+d x) \text{Cos}[3 (c+d x)]-96 a^{10} A b^3 (c+d x) \text{Cos}[3 (c+d x)]+108 a^8 A b^5 (c+d x) \text{Cos}[3 (c+d x)]+$$
$$3 a^{13} B (c+d x) \text{Cos}[3 (c+d x)]+9 a^{11} b^2 B (c+d x) \text{Cos}[3 (c+d x)]-159 a^9 b^4 B (c+d x) \text{Cos}[3 (c+d x)]+$$
$$27 a^7 b^6 B (c+d x) \text{Cos}[3 (c+d x)]-36 a^{11} A b^2 \text{Cos}[5 (c+d x)]-132 a^9 A b^4 \text{Cos}[5 (c+d x)]-294 a^7 A b^6 \text{Cos}[5 (c+d x)]-$$
$$316 a^5 A b^8 \text{Cos}[5 (c+d x)]-142 a^3 A b^{10} \text{Cos}[5 (c+d x)]-24 a A b^{12} \text{Cos}[5 (c+d x)]+9 a^{12} b B \text{Cos}[5 (c+d x)]+33 a^{10} b^3 B \text{Cos}[5 (c+d x)]+$$
$$132 a^8 b^5 B \text{Cos}[5 (c+d x)]+172 a^6 b^7 B \text{Cos}[5 (c+d x)]+79 a^4 b^9 B \text{Cos}[5 (c+d x)]+15 a^2 b^{11} B \text{Cos}[5 (c+d x)]-$$
$$12 a^{12} A b (c+d x) \text{Cos}[5 (c+d x)]+48 a^{10} A b^3 (c+d x) \text{Cos}[5 (c+d x)]-36 a^8 A b^5 (c+d x) \text{Cos}[5 (c+d x)]+3 a^{13} B (c+d x)$$
$$\text{Cos}[5 (c+d x)]-27 a^{11} b^2 B (c+d x) \text{Cos}[5 (c+d x)]+57 a^9 b^4 B (c+d x) \text{Cos}[5 (c+d x)]-9 a^7 b^6 B (c+d x) \text{Cos}[5 (c+d x)]+$$
$$6 a^{12} A b \text{Sin}[c+d x]+78 a^{10} A b^3 \text{Sin}[c+d x]+126 a^8 A b^5 \text{Sin}[c+d x]-412 a^6 A b^7 \text{Sin}[c+d x]-984 a^4 A b^9 \text{Sin}[c+d x]-$$
$$698 a^2 A b^{11} \text{Sin}[c+d x]-180 A b^{13} \text{Sin}[c+d x]-6 a^{13} B \text{Sin}[c+d x]-42 a^{11} b^2 B \text{Sin}[c+d x]-18 a^9 b^4 B \text{Sin}[c+d x]+$$

$376 a^7 b^6 B \mathrm{Sin}[c+d x]+642 a^5 b^8 B \mathrm{Sin}[c+d x]+374 a^3 b^{10} B \mathrm{Sin}[c+d x]+90 a b^{12} B \mathrm{Sin}[c+d x]+72 a^{11} A b^2 (c+d x) \mathrm{Sin}[c+d x]+$
$48 a^9 A b^4 (c+d x) \mathrm{Sin}[c+d x]-120 a^7 A b^6 (c+d x) \mathrm{Sin}[c+d x]-18 a^{12} b B (c+d x) \mathrm{Sin}[c+d x]+78 a^{10} b^3 B (c+d x) \mathrm{Sin}[c+d x]+$
$162 a^8 b^5 B (c+d x) \mathrm{Sin}[c+d x]-30 a^6 b^7 B (c+d x) \mathrm{Sin}[c+d x]+18 a^{12} A b \mathrm{Sin}[3 (c+d x)]+114 a^{10} A b^3 \mathrm{Sin}[3 (c+d x)]+$
$213 a^8 A b^5 \mathrm{Sin}[3 (c+d x)]+479 a^6 A b^7 \mathrm{Sin}[3 (c+d x)]+663 a^4 A b^9 \mathrm{Sin}[3 (c+d x)]+391 a^2 A b^{11} \mathrm{Sin}[3 (c+d x)]+$
$90 A b^{13} \mathrm{Sin}[3 (c+d x)]-9 a^{13} B \mathrm{Sin}[3 (c+d x)]-45 a^{11} b^2 B \mathrm{Sin}[3 (c+d x)]-45 a^9 b^4 B \mathrm{Sin}[3 (c+d x)]-206 a^7 b^6 B \mathrm{Sin}[3 (c+d x)]-$
$345 a^5 b^8 B \mathrm{Sin}[3 (c+d x)]-193 a^3 b^{10} B \mathrm{Sin}[3 (c+d x)]-45 a b^{12} B \mathrm{Sin}[3 (c+d x)]+36 a^{11} A b^2 (c+d x) \mathrm{Sin}[3 (c+d x)]-$
$96 a^9 A b^4 (c+d x) \mathrm{Sin}[3 (c+d x)]+60 a^7 A b^6 (c+d x) \mathrm{Sin}[3 (c+d x)]-9 a^{12} b B (c+d x) \mathrm{Sin}[3 (c+d x)]+$
$69 a^{10} b^3 B (c+d x) \mathrm{Sin}[3 (c+d x)]-99 a^8 b^5 B (c+d x) \mathrm{Sin}[3 (c+d x)]+15 a^6 b^7 B (c+d x) \mathrm{Sin}[3 (c+d x)]+12 a^{12} A b \mathrm{Sin}[5 (c+d x)]+$
$12 a^{10} A b^3 \mathrm{Sin}[5 (c+d x)]-9 a^8 A b^5 \mathrm{Sin}[5 (c+d x)]-109 a^6 A b^7 \mathrm{Sin}[5 (c+d x)]-177 a^4 A b^9 \mathrm{Sin}[5 (c+d x)]-95 a^2 A b^{11} \mathrm{Sin}[5 (c+d x)]-$
$18 A b^{13} \mathrm{Sin}[5 (c+d x)]-3 a^{13} B \mathrm{Sin}[5 (c+d x)]-3 a^{11} b^2 B \mathrm{Sin}[5 (c+d x)]-27 a^9 b^4 B \mathrm{Sin}[5 (c+d x)]+10 a^7 b^6 B \mathrm{Sin}[5 (c+d x)]+$
$69 a^5 b^8 B \mathrm{Sin}[5 (c+d x)]+41 a^3 b^{10} B \mathrm{Sin}[5 (c+d x)]+9 a b^{12} B \mathrm{Sin}[5 (c+d x)]-36 a^{11} A b^2 (c+d x) \mathrm{Sin}[5 (c+d x)]+$
$48 a^9 A b^4 (c+d x) \mathrm{Sin}[5 (c+d x)]-12 a^7 A b^6 (c+d x) \mathrm{Sin}[5 (c+d x)]+9 a^{12} b B (c+d x) \mathrm{Sin}[5 (c+d x)]-$
$57 a^{10} b^3 B (c+d x) \mathrm{Sin}[5 (c+d x)]+27 a^8 b^5 B (c+d x) \mathrm{Sin}[5 (c+d x)]-3 a^6 b^7 B (c+d x) \mathrm{Sin}[5 (c+d x)])) \Big/$
$\left(48 a^6 (a-i b)^4 (a+i b)^4 d (b+a \mathrm{Cot}[c+d x])^4 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\right)$

- **Problem 309: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\mathrm{Tan}[c+d x] (a B+b B \mathrm{Tan}[c+d x])}{(a+b \mathrm{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 48 leaves, 3 steps):

$$\frac{b B x}{a^2+b^2}-\frac{a B \mathrm{Log}[a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]]}{\left(a^2+b^2\right) d}$$

Result (type 3, 67 leaves):

$$\frac{B \left(2 (-i a+b) (c+d x)+2 i a \mathrm{ArcTan}[\mathrm{Tan}[c+d x]]-a \mathrm{Log}\left[(a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])^2\right]\right)}{2 \left(a^2+b^2\right) d}$$

- **Problem 314: Result more than twice size of optimal antiderivative.**

$$\int \frac{3+\mathrm{Tan}[c+d x]}{2-\mathrm{Tan}[c+d x]} \, dx$$

Optimal (type 3, 25 leaves, 2 steps):

$$x-\frac{\mathrm{Log}[2 \mathrm{Cos}[c+d x]-\mathrm{Sin}[c+d x]]}{d}$$

Result (type 3, 62 leaves):

$$\frac{\mathrm{ArcTan}[\mathrm{Tan}[c+d x]]}{d}+\frac{\mathrm{Log}\left[5-4 (2-\mathrm{Tan}[c+d x])+(2-\mathrm{Tan}[c+d x])^2\right]}{2 d}-\frac{\mathrm{Log}[2-\mathrm{Tan}[c+d x]]}{d}$$

- **Problem 316: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{a+b \mathrm{Tan}[c+d x]}{(b+a \mathrm{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 101 leaves, 3 steps):

$$-\frac{a\left(a^2-3b^2\right)x}{\left(a^2+b^2\right)^2}+\frac{b\left(3a^2-b^2\right)\text{Log}[b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x]]}{\left(a^2+b^2\right)^2 d}-\frac{a^2-b^2}{\left(a^2+b^2\right)d\,(b+a\,\text{Tan}[c+d\,x])}$$

Result (type 3, 219 leaves):

$$\frac{1}{2b\left(a^2+b^2\right)^2 d\,(b+a\,\text{Tan}[c+d\,x])}\left(b^2\left(-2\,(a-i\,b)^3\,(c+d\,x)-b\left(-3a^2+b^2\right)\text{Log}\left[(b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x])^2\right]\right)+\right.$$
$$a\left(2\,(a-i\,b)\left(a^3-a^2 b\,(-i+c+d\,x)+b^3\,(-i+c+d\,x)+i\,a\,b^2\,(i+2c+2d\,x)\right)-b^2\left(-3a^2+b^2\right)\text{Log}\left[(b\,\text{Cos}[c+d\,x]+a\,\text{Sin}[c+d\,x])^2\right]\right)$$
$$\left.\text{Tan}[c+d\,x]+2\,i\,b^2\left(-3a^2+b^2\right)\text{ArcTan}[\text{Tan}[c+d\,x]]\,(b+a\,\text{Tan}[c+d\,x])\right)$$

- **Problem 317: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^3\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 233 leaves, 11 steps):

$$\frac{\sqrt{a-i\,b}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{\sqrt{a+i\,b}\,(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}-\frac{2A\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-$$
$$\frac{2\left(14\,a\,A\,b-8a^2 B+35b^2 B\right)(a+b\,\text{Tan}[c+d\,x])^{3/2}}{105\,b^3 d}+\frac{2\,(7\,A\,b-4\,a\,B)\,\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{35\,b^2 d}+\frac{2\,B\,\text{Tan}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{7\,b\,d}$$

Result (type 3, 498 leaves):

$$-\left(i\,(A\,b+a\,B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))-$$
$$\left((-a\,A+b\,B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))+$$
$$\left(\text{Cos}[c+d\,x]\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\left(-\frac{4\left(7a^2 A\,b+63\,A\,b^3-4a^3 B+19\,a\,b^2 B\right)}{105\,b^3}+\right.\right.$$
$$\frac{2\,(7\,A\,b+a\,B)\,\text{Sec}[c+d\,x]^2}{35\,b}-\frac{2\,\text{Sec}[c+d\,x]\left(-7\,a\,A\,b\,\text{Sin}[c+d\,x]+4a^2 B\,\text{Sin}[c+d\,x]+50\,b^2 B\,\text{Sin}[c+d\,x]\right)}{105\,b^2}+$$
$$\left.\left.\frac{2}{7}B\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\Big/(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))$$

Problem 318: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[c+d x]^2 \sqrt{a+b\,\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 186 leaves, 10 steps):

$$\frac{\sqrt{a-i b}\,(i A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{\sqrt{a+i b}\,(i A-B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{2 B\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{d}+\frac{2\,(5 A b-2 a B)\,(a+b\,\mathrm{Tan}[c+d x])^{3/2}}{15 b^2 d}+\frac{2 B\,\mathrm{Tan}[c+d x]\,(a+b\,\mathrm{Tan}[c+d x])^{3/2}}{5 b d}$$

Result (type 3, 443 leaves):

$$\left(\mathrm{Cos}[c+d x]\left(-\frac{2\left(-5 a A b+2 a^2 B+18 b^2 B\right)}{15 b^2}+\frac{2}{5} B\,\mathrm{Sec}[c+d x]^2+\frac{2\,\mathrm{Sec}[c+d x]\,(5 A b\,\mathrm{Sin}[c+d x]+a B\,\mathrm{Sin}[c+d x])}{15 b}\right)\sqrt{a+b\,\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/\left(d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+$$
$$\left(i\,(a A-b B)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\mathrm{Cos}[c+d x]^2\,(a+b\,\mathrm{Tan}[c+d x])\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/$$
$$\left(d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+$$
$$\left((A b+a B)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\mathrm{Cos}[c+d x]^2\,(a+b\,\mathrm{Tan}[c+d x])\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/$$
$$\left(d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)$$

Problem 321: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d x]\sqrt{a+b\,\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 131 leaves, 11 steps):

$$-\frac{2\sqrt{a}\,A\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{\sqrt{a-i b}\,(A-i B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+\frac{\sqrt{a+i b}\,(A+i B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}$$

Result (type 4, 21 769 leaves): Display of huge result suppressed!

Problem 322: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d x]^2\sqrt{a+b\,\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 167 leaves, 12 steps):

$$-\frac{(A b+2 a B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} d}+\frac{\sqrt{a-i b} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{\sqrt{a+i b} (i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{A \text{Cot}[c+d x] \sqrt{a+b \text{Tan}[c+d x]}}{d}$$

Result (type 4, 23 646 leaves): Display of huge result suppressed!

- **Problem 323: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^3 \sqrt{a+b \text{Tan}[c+d x]} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 219 leaves, 13 steps):

$$\frac{(8 a^2 A+A b^2-4 a b B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{3/2} d}-\frac{\sqrt{a-i b} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{\sqrt{a+i b} (A+i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{(A b+4 a B) \text{Cot}[c+d x] \sqrt{a+b \text{Tan}[c+d x]}}{4 a d}-\frac{A \text{Cot}[c+d x]^2 \sqrt{a+b \text{Tan}[c+d x]}}{2 d}$$

Result (type 4, 25 731 leaves): Display of huge result suppressed!

- **Problem 324: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^4 \sqrt{a+b \text{Tan}[c+d x]} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 279 leaves, 14 steps):

$$\frac{(8 a^2 A b-A b^3+16 a^3 B+2 a b^2 B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{8 a^{5/2} d}-\frac{\sqrt{a-i b} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+\frac{\sqrt{a+i b} (i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}+\frac{(8 a^2 A+A b^2-2 a b B) \text{Cot}[c+d x] \sqrt{a+b \text{Tan}[c+d x]}}{8 a^2 d}-\frac{(A b+6 a B) \text{Cot}[c+d x]^2 \sqrt{a+b \text{Tan}[c+d x]}}{12 a d}-\frac{A \text{Cot}[c+d x]^3 \sqrt{a+b \text{Tan}[c+d x]}}{3 d}$$

Result (type 4, 27 748 leaves): Display of huge result suppressed!

- **Problem 325: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d x]^2 (a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 214 leaves, 11 steps):

$$\frac{(a-i b)^{3/2} (i A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{(a+i b)^{3/2} (i A-B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{2 (A b+a B) \sqrt{a+b \operatorname{Tan}[c+d x]}}{d}-\frac{2 B (a+b \operatorname{Tan}[c+d x])^{3/2}}{3 d}+\frac{2 (7 A b-2 a B) (a+b \operatorname{Tan}[c+d x])^{5/2}}{35 b^2 d}+\frac{2 B \operatorname{Tan}[c+d x] (a+b \operatorname{Tan}[c+d x])^{5/2}}{7 b d}$$

Result (type 3, 540 leaves) :

$$\left(i \left(a^2 A-A b^2-2 a b B\right) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])\right) \Big/$$
$$\left(d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\left(\left(2 a A b+a^2 B-b^2 B\right) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \operatorname{Cos}[c+d x]^3 (a+b \operatorname{Tan}[c+d x])^2 (A+B \operatorname{Tan}[c+d x])\right) \Big/$$
$$\left(d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)+$$
$$\left(\operatorname{Cos}[c+d x]^2 (a+b \operatorname{Tan}[c+d x])^{3/2} (A+B \operatorname{Tan}[c+d x]) \left(-\frac{2 \left(-21 a^2 A b+126 A b^3+6 a^3 B+164 a b^2 B\right)}{105 b^2}+\frac{2}{35} (7 A b+8 a B) \operatorname{Sec}[c+d x]^2-\right.\right.$$
$$\left.\left.\frac{2 \operatorname{Sec}[c+d x] \left(-42 a A b \operatorname{Sin}[c+d x]-3 a^2 B \operatorname{Sin}[c+d x]+50 b^2 B \operatorname{Sin}[c+d x]\right)}{105 b}+\frac{2}{7} b B \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]\right)\right) \Big/$$
$$(d (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]))$$

- **Problem 326: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[c+d x] (a+b \operatorname{Tan}[c+d x])^{3/2} (A+B \operatorname{Tan}[c+d x]) \, dx$$

Optimal (type 3, 175 leaves, 10 steps) :

$$-\frac{(a-i b)^{3/2} (A-i B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{(a+i b)^{3/2} (A+i B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}+\frac{2 (a A-b B) \sqrt{a+b \operatorname{Tan}[c+d x]}}{d}+\frac{2 A (a+b \operatorname{Tan}[c+d x])^{3/2}}{3 d}+\frac{2 B (a+b \operatorname{Tan}[c+d x])^{5/2}}{5 b d}$$

Result (type 3, 487 leaves) :

$$\left(\cos[c+d x]^2\left(\frac{2\left(20 a A b+3 a^2 B-18 b^2 B\right)}{15 b}+\frac{2}{5} b B \operatorname{Sec}[c+d x]^2+\frac{2}{15} \operatorname{Sec}[c+d x](5 A b \operatorname{Sin}[c+d x]+6 a B \operatorname{Sin}[c+d x])\right)\right.$$

$$\left.(a+b \operatorname{Tan}[c+d x])^{3/2}(A+B \operatorname{Tan}[c+d x])\right) \Big/ (d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]))-$$

$$\left(\mathrm{i}\left(-2 a A b-a^2 B+b^2 B\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-\mathrm{i} b}}\right]}{\sqrt{a-\mathrm{i} b}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+\mathrm{i} b}}\right]}{\sqrt{a+\mathrm{i} b}}\right) \operatorname{Cos}[c+d x]^3(a+b \operatorname{Tan}[c+d x])^2(A+B \operatorname{Tan}[c+d x])\right) \Big/$$

$$\left(d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)-$$

$$\left(\left(a^2 A-A b^2-2 a b B\right)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-\mathrm{i} b}}\right]}{\sqrt{a-\mathrm{i} b}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+\mathrm{i} b}}\right]}{\sqrt{a+\mathrm{i} b}}\right) \operatorname{Cos}[c+d x]^3(a+b \operatorname{Tan}[c+d x])^2(A+B \operatorname{Tan}[c+d x])\right) \Big/$$

$$\left(d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

- **Problem 327: Result more than twice size of optimal antiderivative.**

$$\int (a+b \operatorname{Tan}[c+d x])^{3/2}(A+B \operatorname{Tan}[c+d x])\, dx$$

Optimal (type 3, 150 leaves, 9 steps) :

$$-\frac{(a-\mathrm{i} b)^{3/2}(\mathrm{i} A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-\mathrm{i} b}}\right]}{d}+$$

$$\frac{(a+\mathrm{i} b)^{3/2}(\mathrm{i} A-B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+\mathrm{i} b}}\right]}{d}+\frac{2(A b+a B) \sqrt{a+b \operatorname{Tan}[c+d x]}}{d}+\frac{2 B(a+b \operatorname{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 442 leaves) :

$$-\left(i\left(a^2 A-A b^2-2 a b B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\text{Cos}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^2\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)-$$
$$\left(\left(2 a A b+a^2 B-b^2 B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\text{Cos}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^2\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+$$
$$\frac{\text{Cos}[c+d x]^2\,(a+b\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\left(\frac{2}{3}\,(3 A b+4 a B)+\frac{2}{3}\,b B\,\text{Tan}[c+d x]\right)}{d\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])}$$

- **Problem 328: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]\,(a+b\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 152 leaves, 12 steps):

$$-\frac{2 a^{3/2} A\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{(a-i b)^{3/2}\,(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+$$
$$\frac{(a+i b)^{3/2}\,(A+i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}+\frac{2 b B\sqrt{a+b\,\text{Tan}[c+d x]}}{d}$$

Result (type 4, 29 055 leaves): Display of huge result suppressed!

- **Problem 329: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^2\,(a+b\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 169 leaves, 12 steps):

$$-\frac{\sqrt{a}\,(3 A b+2 a B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{(a-i b)^{3/2}\,(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-$$
$$\frac{(a+i b)^{3/2}\,(i A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{a A\,\text{Cot}[c+d x]\sqrt{a+b\,\text{Tan}[c+d x]}}{d}$$

Result (type 4, 30 728 leaves): Display of huge result suppressed!

- **Problem 330: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])^{3/2}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 219 leaves, 13 steps):

$$\frac{\left(8 a^2 A-3 A b^2-12 a b B\right) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 \sqrt{a} d}-\frac{(a-i b)^{3/2} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{(a+i b)^{3/2} (A+i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{(5 A b+4 a B) \text{Cot}[c+d x] \sqrt{a+b \text{Tan}[c+d x]}}{4 d}-\frac{a A \text{Cot}[c+d x]^2 \sqrt{a+b \text{Tan}[c+d x]}}{2 d}$$

Result (type 4, 32 510 leaves): Display of huge result suppressed!

Problem 331: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d x]^4 (a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 278 leaves, 14 steps):

$$\frac{\left(24 a^2 A b+A b^3+16 a^3 B-6 a b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{8 a^{3/2} d}-\frac{(a-i b)^{3/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}+\frac{(a+i b)^{3/2} (i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}+\frac{\left(8 a^2 A-A b^2-10 a b B\right) \text{Cot}[c+d x] \sqrt{a+b \text{Tan}[c+d x]}}{8 a d}-\frac{(7 A b+6 a B) \text{Cot}[c+d x]^2 \sqrt{a+b \text{Tan}[c+d x]}}{12 d}-\frac{a A \text{Cot}[c+d x]^3 \sqrt{a+b \text{Tan}[c+d x]}}{3 d}$$

Result (type 4, 34 557 leaves): Display of huge result suppressed!

Problem 332: Result more than twice size of optimal antiderivative.

$$\int \text{Tan}[c+d x]^2 (a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 252 leaves, 12 steps):

$$\frac{(a-i b)^{5/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{d}-\frac{(a+i b)^{5/2} (i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{d}-\frac{2 \left(2 a A b+a^2 B-b^2 B\right) \sqrt{a+b \text{Tan}[c+d x]}}{d}-\frac{2 (A b+a B) (a+b \text{Tan}[c+d x])^{3/2}}{3 d}-\frac{2 B (a+b \text{Tan}[c+d x])^{5/2}}{5 d}+\frac{2 (9 A b-2 a B) (a+b \text{Tan}[c+d x])^{7/2}}{63 b^2 d}+\frac{2 B \text{Tan}[c+d x] (a+b \text{Tan}[c+d x])^{7/2}}{9 b d}$$

Result (type 3, 622 leaves):

$$\frac{1}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$\text{Cos}[c+d\,x]^3\left(-\frac{2\left(-45\,a^3\,A\,b+870\,a\,A\,b^3+10\,a^4\,B+558\,a^2\,b^2\,B-413\,b^4\,B\right)}{315\,b^2}+\frac{2}{315}\left(135\,a\,A\,b+75\,a^2\,B-133\,b^2\,B\right)\,\text{Sec}[c+d\,x]^2+\right.$$
$$\frac{2}{9}\,b^2\,B\,\text{Sec}[c+d\,x]^4+\frac{2}{63}\,\text{Sec}[c+d\,x]^3\left(9\,A\,b^2\,\text{Sin}[c+d\,x]+19\,a\,b\,B\,\text{Sin}[c+d\,x]\right)-\frac{1}{315\,b}2\,\text{Sec}[c+d\,x]$$
$$\left.\left(-135\,a^2\,A\,b\,\text{Sin}[c+d\,x]+150\,A\,b^3\,\text{Sin}[c+d\,x]-5\,a^3\,B\,\text{Sin}[c+d\,x]+326\,a\,b^2\,B\,\text{Sin}[c+d\,x]\right)\right)\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])+$$
$$\left(\mathrm{i}\,\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 333: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 213 leaves, 11 steps):

$$-\frac{(a-\mathrm{i}\,b)^{5/2}\,(A-\mathrm{i}\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{d}-\frac{(a+\mathrm{i}\,b)^{5/2}\,(A+\mathrm{i}\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{d}+$$
$$\frac{2\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2\,(a\,A-b\,B)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}+\frac{2\,A\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{5\,d}+\frac{2\,B\,(a+b\,\text{Tan}[c+d\,x])^{7/2}}{7\,b\,d}$$

Result (type 3, 558 leaves):

$$-\left(i\left(-3a^2Ab+Ab^3-a^3B+3ab^2B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)-$$
$$\left(\left(a^3A-3aAb^2-3a^2bB+b^3B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\text{Cos}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(\text{Cos}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\left(\frac{2\left(161a^2Ab-126Ab^3+15a^3B-290ab^2B\right)}{105\,b}+\frac{2}{35}b\,(7Ab+15aB)\,\text{Sec}[c+d\,x]^2+\right.\right.$$
$$\left.\left.\frac{2}{105}\text{Sec}[c+d\,x]\left(77aAb\,\text{Sin}[c+d\,x]+45a^2B\,\text{Sin}[c+d\,x]-50b^2B\,\text{Sin}[c+d\,x]\right)+\frac{2}{7}b^2B\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]\right)\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

Problem 334: Result more than twice size of optimal antiderivative.

$$\int(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 188 leaves, 10 steps):

$$-\frac{(a-i\,b)^{5/2}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{d}+\frac{(a+i\,b)^{5/2}\,(i\,A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{d}+$$
$$\frac{2\left(2aAb+a^2B-b^2B\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}+\frac{2\,(Ab+aB)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}+\frac{2B\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}{5\,d}$$

Result (type 3, 506 leaves):

$$\left(\text{Cos}[c+d x]^3 \left(\frac{2}{15} \left(35 a A b+23 a^2 B-18 b^2 B\right)+\frac{2}{5} b^2 B \text{Sec}[c+d x]^2+\frac{2}{15} \text{Sec}[c+d x] \left(5 A b^2 \text{Sin}[c+d x]+11 a b B \text{Sin}[c+d x]\right)\right) (a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)-$$

$$\left(\text{i} \left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-\text{i} b}}\right]}{\sqrt{a-\text{i} b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+\text{i} b}}\right]}{\sqrt{a+\text{i} b}}\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^3 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)-$$

$$\left(\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-\text{i} b}}\right]}{\sqrt{a-\text{i} b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+\text{i} b}}\right]}{\sqrt{a+\text{i} b}}\right) \text{Cos}[c+d x]^4 (a+b \text{Tan}[c+d x])^3 (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

- **Problem 335: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x] (a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 182 leaves, 13 steps):

$$-\frac{2 a^{5/2} A \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{(a-\text{i} b)^{5/2} (A-\text{i} B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-\text{i} b}}\right]}{d}+$$

$$\frac{(a+\text{i} b)^{5/2} (A+\text{i} B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+\text{i} b}}\right]}{d}+\frac{2 b (A b+2 a B) \sqrt{a+b \text{Tan}[c+d x]}}{d}+\frac{2 b B (a+b \text{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 4, 36 102 leaves): Display of huge result suppressed!

- **Problem 336: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^2 (a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 196 leaves, 13 steps):

$$-\frac{a^{3/2} (5 A b+2 a B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{d}+\frac{(a-\text{i} b)^{5/2} (\text{i} A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-\text{i} b}}\right]}{d}-$$

$$\frac{(a+\text{i} b)^{5/2} (\text{i} A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+\text{i} b}}\right]}{d}+\frac{b (a A+2 b B) \sqrt{a+b \text{Tan}[c+d x]}}{d}-\frac{a A \text{Cot}[c+d x] (a+b \text{Tan}[c+d x])^{3/2}}{d}$$

Result (type 4, 37 767 leaves): Display of huge result suppressed!

Problem 337: Humongous result has more than 200000 leaves.

$$\int \text{Cot}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 220 leaves, 13 steps):

$$\frac{\sqrt{a}\,\left(8\,a^2\,A-15\,A\,b^2-20\,a\,b\,B\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,d}-\frac{(a-\mathrm{i}\,b)^{5/2}\,(A-\mathrm{i}\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{d}-\frac{(a+\mathrm{i}\,b)^{5/2}\,(A+\mathrm{i}\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{d}-\frac{a\,(7\,A\,b+4\,a\,B)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,d}-\frac{a\,A\,\text{Cot}[c+d\,x]^2\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{2\,d}$$

Result (type ?, 222 720 leaves): Display of huge result suppressed!

Problem 338: Humongous result has more than 200000 leaves.

$$\int \text{Cot}[c+d\,x]^4\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 277 leaves, 14 steps):

$$\frac{\left(40\,a^2\,A\,b-5\,A\,b^3+16\,a^3\,B-30\,a\,b^2\,B\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{8\,\sqrt{a}\,d}-\frac{(a-\mathrm{i}\,b)^{5/2}\,(\mathrm{i}\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{d}+\frac{(a+\mathrm{i}\,b)^{5/2}\,(\mathrm{i}\,A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{d}+\frac{\left(8\,a^2\,A-11\,A\,b^2-18\,a\,b\,B\right)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{8\,d}-\frac{a\,(3\,A\,b+2\,a\,B)\,\text{Cot}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,d}-\frac{a\,A\,\text{Cot}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type ?, 240 294 leaves): Display of huge result suppressed!

Problem 339: Humongous result has more than 200000 leaves.

$$\int \text{Cot}[c+d\,x]^5\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 342 leaves, 15 steps):

$$-\frac{\left(128\, a^4\, A-240\, a^2\, A\, b^2-5\, A\, b^4-320\, a^3\, b\, B+40\, a\, b^3\, B\right)\, \text{ArcTanh}\left[\frac{\sqrt{a+b\, \text{Tan}[c+d\, x]}}{\sqrt{a}}\right]}{64\, a^{3/2}\, d}+$$

$$\frac{(a-i\, b)^{5/2}\, (A-i\, B)\, \text{ArcTanh}\left[\frac{\sqrt{a+b\, \text{Tan}[c+d\, x]}}{\sqrt{a-i\, b}}\right]}{d}+\frac{(a+i\, b)^{5/2}\, (A+i\, B)\, \text{ArcTanh}\left[\frac{\sqrt{a+b\, \text{Tan}[c+d\, x]}}{\sqrt{a+i\, b}}\right]}{d}+$$

$$\frac{\left(144\, a^2\, A\, b-5\, A\, b^3+64\, a^3\, B-88\, a\, b^2\, B\right)\, \text{Cot}[c+d\, x]\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{64\, a\, d}+\frac{\left(48\, a^2\, A-59\, A\, b^2-104\, a\, b\, B\right)\, \text{Cot}[c+d\, x]^2\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{96\, d}-$$

$$\frac{a\, (11\, A\, b+8\, a\, B)\, \text{Cot}[c+d\, x]^3\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{24\, d}-\frac{a\, A\, \text{Cot}[c+d\, x]^4\, (a+b\, \text{Tan}[c+d\, x])^{3/2}}{4\, d}$$

Result (type ?, 258 206 leaves) : Display of huge result suppressed!

- **Problem 340: Result more than twice size of optimal antiderivative.**

$$\int (-a+b\, \text{Tan}[c+d\, x])\, (a+b\, \text{Tan}[c+d\, x])^{5/2}\, dx$$

Optimal (type 3, 151 leaves, 10 steps) :

$$\frac{(i\, a-b)\, (a-i\, b)^{5/2}\, \text{ArcTanh}\left[\frac{\sqrt{a+b\, \text{Tan}[c+d\, x]}}{\sqrt{a-i\, b}}\right]}{d}-$$

$$\frac{(a+i\, b)^{5/2}\, (i\, a+b)\, \text{ArcTanh}\left[\frac{\sqrt{a+b\, \text{Tan}[c+d\, x]}}{\sqrt{a+i\, b}}\right]}{d}-\frac{2\, b\, \left(a^2+b^2\right)\, \sqrt{a+b\, \text{Tan}[c+d\, x]}}{d}+\frac{2\, b\, (a+b\, \text{Tan}[c+d\, x])^{5/2}}{5\, d}$$

Result (type 3, 479 leaves) :

$$\left(\text{Cos}[c+d\,x]^3\,(-a+b\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\left(\frac{4}{5}\,b\left(2\,a^2+3\,b^2\right)-\frac{2}{5}\,b^3\,\text{Sec}[c+d\,x]^2-\frac{4}{5}\,a\,b^2\,\text{Tan}[c+d\,x]\right)\right)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]-b\,\text{Sin}[c+d\,x])\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right)+$$

$$\left(\left(a^2+b^2\right)\,(-a+b\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\left(-\frac{\mathrm{i}\,\left(a^2-b^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.\right.$$

$$\left.\left.\frac{2\,a\,b\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left(d\,\text{Sec}[c+d\,x]^{7/2}\,(a\,\text{Cos}[c+d\,x]-b\,\text{Sin}[c+d\,x])\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{5/2}\right)$$

Problem 341: Result unnecessarily involves imaginary or complex numbers.

$$\int(-a+b\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,dx$$

Optimal (type 3, 408 leaves, 13 steps):

$$-\frac{b\left(a^2+b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\sqrt{a-\sqrt{a^2+b^2}}\,d}+\frac{b\left(a^2+b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\sqrt{a-\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\left(a^2+b^2\right)\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\left(a^2+b^2\right)\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\sqrt{a+\sqrt{a^2+b^2}}\,d}+\frac{2\,b\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 3, 180 leaves) :

$$\Bigg(\text{Cos}[c+d\,x]^2\,(a-b\,\text{Tan}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])$$
$$\left(3\,i\sqrt{a-i\,b}\left(a^2+b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]-3\,i\sqrt{a+i\,b}\left(a^2+b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]+2\,b\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)\Bigg)\Big/$$
$$\left(3\,d\left(a^2\,\text{Cos}[c+d\,x]^2-b^2\,\text{Sin}[c+d\,x]^2\right)\right)$$

- **Problem 342: Result unnecessarily involves imaginary or complex numbers.**

$$\int(-a+b\,\text{Tan}[c+d\,x])\sqrt{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 422 leaves, 13 steps) :

$$-\frac{b\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+\frac{b\sqrt{a^2+b^2}\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\sqrt{a^2+b^2}\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\sqrt{a^2+b^2}\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+\frac{2\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 3, 120 leaves):

$$\frac{i\left(\frac{(a^2+b^2)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{(a^2+b^2)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}-2\,i\,b\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)}{d}$$

Problem 347: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\text{Cot}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 131 leaves, 11 steps):

$$-\frac{2\,A\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,d}+\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\,d}+\frac{(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}\,d}$$

Result (type 4, 12 409 leaves):

$$\left(4\,(B+A\,\text{Cot}[c+d\,x])\left(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A - i B)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}$$

$$\left(\frac{A\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{A\,\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{B\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\ \text{Sin}[2(c+d x)]}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)$$

$$-\Bigg(\Bigg(4\Bigg(-A\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$A\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,B\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$A\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \Big(-b\,\text{Sec}\Big[$$

$$\frac{1}{2}(c+d\,x)\Big]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\Big)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)^2\right)\right)+$$

$$\left(2\left(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A-\mathbb{i} B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathbb{i} B\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\Bigg(2\Bigg(-A \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A-\text{i} B) \text{EllipticPi}\left[-\frac{\text{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A \text{EllipticPi}\left[\frac{\text{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{i} B \text{EllipticPi}\left[\frac{\text{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$A \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(2\left(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A-i B)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\ \sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)^{3/2}\left(-2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\Bigg(2\Bigg(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A-i B)\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(2\Bigg(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A - i B)\, \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$A\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] +$$

$$i B\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right] -$$

$$A\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg)\Bigg/$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(2\left(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathrm{i}\,B\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\left.\left(\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(2\left(-A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathbb{i}\,B\,\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)$$

$$\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(\frac{b\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2-a\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}-\right.$$

$$\left.\left.\frac{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{a+2 b\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\right.$$

$$\left.\left(-2 b\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(4\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2 b\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\left(A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/\right.$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(i\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(A-i B\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\sec\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\sec\left[\frac{1}{2}(c+d x)\right]^2\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1+\frac{i\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\tan\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\right)-$$

$$A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\sec\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\sec\left[\frac{1}{2}(c+d x)\right]^2\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}\right)\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\right)\right)\Bigg/$$

$$\left(\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2 b\tan\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\tan\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)\right)\sqrt{a+b\tan[c+d x]}\right)$$

- **Problem 348: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\cot[c+d x]^2\left(A+B\tan[c+d x]\right)}{\sqrt{a+b\tan[c+d x]}}\,dx$$

Optimal (type 3, 169 leaves, 12 steps) :

$$\frac{(A b-2 a B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{3/2} d}+\frac{(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}\; d}-\frac{(i A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}\; d}-\frac{A\,\text{Cot}[c+d x]\,\sqrt{a+b\,\text{Tan}[c+d x]}}{a d}$$

Result (type 4, 17 098 leaves):

$$-\frac{A\,(B+A\,\text{Cot}[c+d x])\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,\sqrt{a+b\,\text{Tan}[c+d x]}}+$$

$$\Bigg(2\,(B+A\,\text{Cot}[c+d x])\,\Bigg(-A b\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$(A b-2 a B)\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2 i a A\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2 a B\,\text{EllipticPi}\Big[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2 i a A\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2 a B\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Big],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\text{Sin}[c+d\,x]\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\left(-\frac{A\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\,a\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{B\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(-\left(\left(2\left(-A\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$(A b-2 a B)\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\, i\, a A\, \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a B\, \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\, i\, a A\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a B\, \text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A b\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.2 a B\, \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-b\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)\Bigg)+$$

$$\Bigg(\Bigg(-A\,b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A\,b-2\,a\,B)\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,A\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,A\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(-A\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A\,b-2\,a\,B)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\Bigg) \Bigg/$$

$$\left(a \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}} \left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\Bigg(\Bigg(-A\, b \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A\, b-2 a B) \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\, i\, a\, A \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\, a\, B \operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\, i\, a\, A \operatorname{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(a\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-A\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A\,b-2\,a\,B)\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,\mathbb{i}\,a\,A\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,a\,B\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,\mathbb{i}\,a\,A\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$2\,a\,B\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$A\,b\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$2\,a\,B\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\ \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\frac{a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)+$$

$$\left(\left(-A b \text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A b-2 a B) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 i a A \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2 a B \text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(\Bigg(-A\,b\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A\,b-2\,a\,B)\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,A\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,A\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(-A\,b\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$(A\,b-2\,a\,B)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,i\,a\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$2\,i\,a\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$2\,a\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$A\,b\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\left.2\,a\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Bigg/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(2\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\left(A\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(A\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)-$$

$$\left(a B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)-$$

$$\left(i a A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\Big/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg)+$$

$$\left(a\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\left(1-\frac{\mathbb{i}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\,\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)+$$

$$\left(\mathbb{i}\,a\,A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\left(1+\frac{\mathbb{i}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\,\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)+$$

$$\left(a\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\left(1+\frac{\mathbb{i}\,\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ +$$

$$\left((A\,b-2\,a\,B)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)\right)\right)\Big/$$

$$\left(a\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\ \right)$$

- **Problem 349: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^3\,(A+B\,\text{Tan}[c+d\,x])}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 224 leaves, 13 steps):

$$\frac{\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,a^{5/2}\,d}-\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\,d}-$$

$$\frac{(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}\,d}+\frac{(3\,A\,b-4\,a\,B)\,\text{Cot}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,a^2\,d}-\frac{A\,\text{Cot}[c+d\,x]^2\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,a\,d}$$

Result (type 4, 19139 leaves):

$$\left((B+A\,\text{Cot}[c+d\,x])\left(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$4\,a\,b\,B\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$\text{Sin}[c+d\,x]\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\Bigg(-\frac{A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,A\,b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{8\,a^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{b\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\,a\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Big/$$

$$\Bigg(2\,a^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)$$

$$\Bigg(-\Bigg(\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(2\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)^2\right)\right)+$$

$$\left(\left(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\left(\left(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\left(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\operatorname{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Big/$$

$$\left(4\,a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\operatorname{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\operatorname{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\operatorname{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,\mathrm{i}\,a^2\,B\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,\mathrm{i}\,a^2\,B\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$4\,a\,b\,B\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)+$$

$$\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,i\,a^2\,B\,\mathrm{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,a^2\,A\,\mathrm{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$8\,i\,a^2\,B\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$8\,a^2\,A\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$3\,A\,b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$4\,a\,b\,B\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Bigg/$$

$$\left(4\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$\Bigg(\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}$$

$$\Bigg(\Bigg(b\,(3\,A\,b-4\,a\,B)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)+$$

$$\left(4\,a^2\,A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Bigg/$$

$$\Bigg(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)-$$

$$\left(3\,A\,b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)+$$

$$\left(2\,a\,b\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\;\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,a^2\,A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,i\,a^2\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(4\,a^2\,A\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(4\,i\,a^2\,B\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)+\left(\left(8\,a^2\,A-3\,A\,b^2+4\,a\,b\,B\right)\right.$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right)\right)\right)\Big/$$

$$\left(2\,a^2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)+$$

$$\left((B+A\,\text{Cot}[c+d\,x])\left(\frac{A}{2\,a}+\frac{(3\,A\,b\,\text{Cos}[c+d\,x]-4\,a\,B\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]}{4\,a^2}-\right.\right.$$

$$\left.\frac{A\,\text{Csc}[c+d\,x]^2}{2\,a}\right)(a\,\text{Cos}[c+d\,x]+$$

$$b\,\text{Sin}[c+d\,x])\,\text{Tan}[c+$$

$$\left.\text{d x}]\right) \Big/ \left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)$$

- **Problem 350: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d\,x]^3\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 264 leaves, 10 steps):

$$\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{3/2}\,d}+\frac{(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{3/2}\,d}+\frac{2\,a\,(A\,b-a\,B)\,\text{Tan}[c+d\,x]^2}{b\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$
$$\frac{2\,\left(6\,a^2\,A\,b+3\,A\,b^3-8\,a^3\,B-5\,a\,b^2\,B\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,b^3\,\left(a^2+b^2\right)\,d}-\frac{2\,\left(3\,a\,A\,b-4\,a^2\,B-b^2\,B\right)\,\text{Tan}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,b^2\,\left(a^2+b^2\right)\,d}$$

Result (type 3, 575 leaves):

$$\left(\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A+B\,\text{Tan}[c+d\,x])\right.$$
$$\left.\left(-\frac{2\left(-6\,a^2\,A\,b-3\,A\,b^3+8\,a^3\,B+5\,a\,b^2\,B\right)}{3\,(a-i\,b)\,(a+i\,b)\,b^3}+\frac{2\left(-a^2\,A\,b\,\text{Sin}[c+d\,x]+a^3\,B\,\text{Sin}[c+d\,x]\right)}{(a-i\,b)\,(a+i\,b)\,b^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}+\frac{2\,B\,\text{Tan}[c+d\,x]}{3\,b^2}\right)\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)-\left(\sqrt{\text{Sec}[c+d\,x]}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\right.$$
$$(A+B\,\text{Tan}[c+d\,x])\left(-\frac{i\,(A\,b-a\,B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$
$$\left.\left.\frac{(a\,A+b\,B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/$$
$$\left((a-i\,b)\,(a+i\,b)\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)$$

- **Problem 351: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^2\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 167 leaves, 9 steps):

$$\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{3/2}\,d}-\frac{(i\,A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{3/2}\,d}-\frac{2\,a^2\,(A\,b-a\,B)}{b^2\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{2\,B\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b^2\,d}$$

Result (type 3, 547 leaves):

$$\left(\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(\frac{2\left(-a A b+2 a^2 B+b^2 B\right)}{(a-i b)\,(a+i b)\,b^2}-\frac{2\left(-a A b\,\text{Sin}[c+d x]+a^2 B\,\text{Sin}[c+d x]\right)}{(a-i b)\,(a+i b)\,b\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)(A+B\,\text{Tan}[c+d x])\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^{3/2}\right)-\left(\sqrt{\text{Sec}[c+d x]}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\right.$$

$$(A+B\,\text{Tan}[c+d x])\left(-\frac{i\,(a A+b B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\right.$$

$$\left.\left.\frac{(-A b+a B)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)\right)\Big/$$

$$\left((a-i b)\,(a+i b)\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^{3/2}\right)$$

Problem 352: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[c+d x]\,(A+B\,\text{Tan}[c+d x])}{(a+b\,\text{Tan}[c+d x])^{3/2}}\,dx$$

Optimal (type 3, 141 leaves, 8 steps):

$$-\frac{(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2}\,d}-\frac{(A+i B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2}\,d}+\frac{2 a\,(A b-a B)}{b\left(a^2+b^2\right)d\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 3, 531 leaves):

$$\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(\frac{2 (A b-a B)}{b (-i a+b) (i a+b)}+\frac{2 (-A b \text{Sin}[c+d x]+a B \text{Sin}[c+d x])}{(a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right) (A+B \text{Tan}[c+d x])\right) \Big/$$

$$\left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^{3/2}\right)+\left(\sqrt{\text{Sec}[c+d x]} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{3/2}\right.$$

$$(A+B \text{Tan}[c+d x]) \left(-\frac{i (A b-a B) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\right.$$

$$\left.\left.\frac{(a A+b B) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)\right) \Big/$$

$$\left((a-i b) (a+i b) d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^{3/2}\right)$$

- **Problem 353: Result more than twice size of optimal antiderivative.**

$$\int \frac{A+B \text{Tan}[c+d x]}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 138 leaves, 8 steps):

$$-\frac{(i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}+\frac{(i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}-\frac{2 (A b-a B)}{\left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 3, 537 leaves):

$$\left(\operatorname{Sec}[c+d x]\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\left(-\frac{2\,(A b-a B)}{a\,(-i a+b)\,(i a+b)}-\frac{2\left(-A b^2 \operatorname{Sin}[c+d x]+a b B \operatorname{Sin}[c+d x]\right)}{a\,(a-i b)\,(a+i b)\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}\right)(A+B \operatorname{Tan}[c+d x])\right)\Big/$$

$$\left(d\,(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\,(a+b \operatorname{Tan}[c+d x])^{3/2}\right)+\left(\sqrt{\operatorname{Sec}[c+d x]}\,(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^{3/2}\right.$$

$$(A+B \operatorname{Tan}[c+d x])\left(-\frac{i\,(a A+b B)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-\right.$$

$$\left.\left.\frac{(-A b+a B)\left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right)\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\right)\right)\Big/$$

$$\left((a-i b)\,(a+i b)\,d\,(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\,(a+b \operatorname{Tan}[c+d x])^{3/2}\right)$$

- **Problem 354: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c+d x]\,(A+B \operatorname{Tan}[c+d x])}{(a+b \operatorname{Tan}[c+d x])^{3/2}}\,dx$$

Optimal (type 3, 171 leaves, 12 steps):

$$-\frac{2 A \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{3/2} d}+\frac{(A-i B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}+\frac{(A+i B) \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}+\frac{2 b\,(A b-a B)}{a\,(a^2+b^2)\,d\,\sqrt{a+b \operatorname{Tan}[c+d x]}}$$

Result (type 4, 24431 leaves): Display of huge result suppressed!

- **Problem 355: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^2 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 219 leaves, 13 steps):

$$\frac{(3 A b-2 a B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{5/2} d}+\frac{(i A+B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}-\frac{(i A-B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}-\frac{b \left(a^2 A+3 A b^2-2 a b B\right)}{a^2 \left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}-\frac{A \text{Cot}[c+d x]}{a d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 27 988 leaves): Display of huge result suppressed!

- **Problem 356: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^{3/2}} \, dx$$

Optimal (type 3, 285 leaves, 14 steps):

$$\frac{\left(8 a^2 A-15 A b^2+12 a b B\right) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{7/2} d}-\frac{(A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}-\frac{(A+i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}+\frac{b \left(7 a^2 A b+15 A b^3-4 a^3 B-12 a b^2 B\right)}{4 a^3 \left(a^2+b^2\right) d \sqrt{a+b \text{Tan}[c+d x]}}+\frac{(5 A b-4 a B) \text{Cot}[c+d x]}{4 a^2 d \sqrt{a+b \text{Tan}[c+d x]}}-\frac{A \text{Cot}[c+d x]^2}{2 a d \sqrt{a+b \text{Tan}[c+d x]}}$$

Result (type 4, 29 982 leaves): Display of huge result suppressed!

- **Problem 358: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^3 (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 261 leaves, 10 steps):

$$\frac{(A-i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{5/2} d}+\frac{(A+i B) \text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{5/2} d}+\frac{2 a (A b-a B) \text{Tan}[c+d x]^2}{3 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^{3/2}}-\frac{2 a^2 \left(a^2 A b+7 A b^3-4 a^3 B-10 a b^2 B\right)}{3 b^3 \left(a^2+b^2\right)^2 d \sqrt{a+b \text{Tan}[c+d x]}}-\frac{2 \left(a A b-4 a^2 B-3 b^2 B\right) \sqrt{a+b \text{Tan}[c+d x]}}{3 b^3 \left(a^2+b^2\right) d}$$

Result (type 3, 677 leaves):

$$\Bigg(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(\frac{2\left(-2\,a^3\,A\,b-9\,a\,A\,b^3+8\,a^4\,B+18\,a^2\,b^2\,B+3\,b^4\,B\right)}{3\,(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,b^3}-\frac{2\,a^3\,(-A\,b+a\,B)}{3\,(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,b\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\right.$$

$$\left.\frac{2\left(-a^3\,A\,b\,\text{Sin}[c+d\,x]-9\,a\,A\,b^3\,\text{Sin}[c+d\,x]+4\,a^4\,B\,\text{Sin}[c+d\,x]+12\,a^2\,b^2\,B\,\text{Sin}[c+d\,x]\right)}{3\,(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,b^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)(A+B\,\text{Tan}[c+d\,x])\Bigg)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)-\Bigg(\text{Sec}[c+d\,x]^{3/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{5/2}$$

$$(A+B\,\text{Tan}[c+d\,x])\left(-\frac{\mathbb{i}\left(2\,a\,A\,b-a^2\,B+b^2\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathbb{i}\,b}}\right]}{\sqrt{a-\mathbb{i}\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathbb{i}\,b}}\right]}{\sqrt{a+\mathbb{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathbb{i}\,b}}\right]}{\sqrt{a-\mathbb{i}\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathbb{i}\,b}}\right]}{\sqrt{a+\mathbb{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\Bigg)\Big/$$

$$\left((a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 359: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d\,x]^2\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 198 leaves, 9 steps):

$$\frac{(i A+B)\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{5/2} d}-\frac{(i A-B)\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{5/2} d}-\frac{2 a^2 (A b-a B)}{3 b^2 \left(a^2+b^2\right) d (a+b\operatorname{Tan}[c+d x])^{3/2}}+\frac{2 a \left(2 A b^3-a \left(a^2+3 b^2\right) B\right)}{b^2 \left(a^2+b^2\right)^2 d \sqrt{a+b\operatorname{Tan}[c+d x]}}$$

Result (type 3, 660 leaves) :

$$\left(\operatorname{Sec}[c+d x]^2 (a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x])^3 \left(-\frac{2 \left(a^2 A b-6 A b^3+2 a^3 B+9 a b^2 B\right)}{3 (a-i b)^2 (a+i b)^2 b^2}+\frac{2 a^2 (-A b+a B)}{3 (a-i b)^2 (a+i b)^2 (a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x])^2}+\frac{2 \left(2 a^2 A b\operatorname{Sin}[c+d x]-6 A b^3\operatorname{Sin}[c+d x]+a^3 B\operatorname{Sin}[c+d x]+9 a b^2 B\operatorname{Sin}[c+d x]\right)}{3 (a-i b)^2 (a+i b)^2 b (a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x])}\right) (A+B\operatorname{Tan}[c+d x])\right)\Big/$$

$$\left(d (A\operatorname{Cos}[c+d x]+B\operatorname{Sin}[c+d x]) (a+b\operatorname{Tan}[c+d x])^{5/2}\right)-\left(\operatorname{Sec}[c+d x]^{3/2} (a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x])^{5/2}\right.$$

$$(A+B\operatorname{Tan}[c+d x]) \left(-\frac{i \left(a^2 A-A b^2+2 a b B\right) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}-\right.$$

$$\left.\left.\frac{\left(-2 a A b+a^2 B-b^2 B\right) \left(\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b\operatorname{Tan}[c+d x]}}{\sqrt{\operatorname{Sec}[c+d x]} \sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}\right)\right)\Big/$$

$$\left((a-i b)^2 (a+i b)^2 d (A\operatorname{Cos}[c+d x]+B\operatorname{Sin}[c+d x]) (a+b\operatorname{Tan}[c+d x])^{5/2}\right)$$

- **Problem 360: Result more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c+d x] (A+B\operatorname{Tan}[c+d x])}{(a+b\operatorname{Tan}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 188 leaves, 9 steps) :

$$-\frac{(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}-\frac{(A+\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}+\frac{2\,a\,(A\,b-a\,B)}{3\,b\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)}{\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 3, 662 leaves) :

$$\left(\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(-\frac{2\,\left(-4\,a^2\,A\,b+3\,A\,b^3+a^3\,B-6\,a\,b^2\,B\right)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b}-\frac{2\,a\,b\,(-A\,b+a\,B)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\frac{2\,\left(-5\,a^2\,A\,b\,\mathrm{Sin}[c+d\,x]+3\,A\,b^3\,\mathrm{Sin}[c+d\,x]+2\,a^3\,B\,\mathrm{Sin}[c+d\,x]-6\,a\,b^2\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)+\left(\mathrm{Sec}[c+d\,x]^{3/2}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{5/2}\right.$$

$$(A+B\,\mathrm{Tan}[c+d\,x])\left(-\frac{\mathrm{i}\,\left(2\,a\,A\,b-a^2\,B+b^2\,B\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 361: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 185 leaves, 9 steps) :

$$-\frac{(\mathrm{i}\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}+\frac{(\mathrm{i}\,A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}-\frac{2\,(A\,b-a\,B)}{3\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,\left(2\,a\,A\,b-a^2\,B+b^2\,B\right)}{\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 3, 640 leaves):

$$\left(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{2\,\left(-7\,a\,A\,b+4\,a^2\,B-3\,b^2\,B\right)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{2\,b^2\,(-A\,b+a\,B)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-\frac{2\,\left(-8\,a\,A\,b^2\,\text{Sin}[c+d\,x]+5\,a^2\,b\,B\,\text{Sin}[c+d\,x]-3\,b^3\,B\,\text{Sin}[c+d\,x]\right)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)+\left(\text{Sec}[c+d\,x]^{3/2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{5/2}\right.$$

$$(A+B\,\text{Tan}[c+d\,x])\left(-\frac{\mathrm{i}\,\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{\sqrt{a-\mathrm{i}\,b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{\sqrt{a+\mathrm{i}\,b}}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\right)\Big/$$

$$\left((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 362: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 224 leaves, 13 steps):

$$-\frac{2\,A\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{5/2}\,d}+\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}+$$

$$\frac{(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}+\frac{2\,b\,(A\,b-a\,B)}{3\,a\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,b\,\left(3\,a^2\,A\,b+A\,b^3-2\,a^3\,B\right)}{a^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 33 211 leaves) : Display of huge result suppressed!

Problem 363: Humongous result has more than 200000 leaves.

$$\int\frac{\text{Cot}[c+d\,x]^2\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 289 leaves, 14 steps) :

$$\frac{(5\,A\,b-2\,a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{7/2}\,d}+\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}-\frac{(i\,A-B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}-$$

$$\frac{b\,\left(3\,a^2\,A+5\,A\,b^2-2\,a\,b\,B\right)}{3\,a^2\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{A\,\text{Cot}[c+d\,x]}{a\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{b\,\left(a^4\,A+10\,a^2\,A\,b^2+5\,A\,b^4-6\,a^3\,b\,B-2\,a\,b^3\,B\right)}{a^3\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type ?, 234 114 leaves) : Display of huge result suppressed!

Problem 364: Humongous result has more than 200000 leaves.

$$\int\frac{\text{Cot}[c+d\,x]^3\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 364 leaves, 15 steps) :

$$\frac{\left(8\,a^2\,A-35\,A\,b^2+20\,a\,b\,B\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{4\,a^{9/2}\,d}-\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{(a-i\,b)^{5/2}\,d}-$$

$$\frac{(A+i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{(a+i\,b)^{5/2}\,d}+\frac{b\,\left(27\,a^2\,A\,b+35\,A\,b^3-12\,a^3\,B-20\,a\,b^2\,B\right)}{12\,a^3\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{(7\,A\,b-4\,a\,B)\,\text{Cot}[c+d\,x]}{4\,a^2\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-$$

$$\frac{A\,\text{Cot}[c+d\,x]^2}{2\,a\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{b\,\left(11\,a^4\,A\,b+62\,a^2\,A\,b^3+35\,A\,b^5-4\,a^5\,B-40\,a^3\,b^2\,B-20\,a\,b^4\,B\right)}{4\,a^4\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type ?, 251 836 leaves) : Display of huge result suppressed!

Problem 365: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a B + b B \operatorname{Tan}[c + d x]}{\sqrt{a + b \operatorname{Tan}[c + d x]}} \, dx$$

Optimal (type 3, 362 leaves, 12 steps):

$$\frac{b B \operatorname{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}} - \sqrt{2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2} \sqrt{a - \sqrt{a^2 + b^2}} \, d} - \frac{b B \operatorname{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}} + \sqrt{2} \sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2} \sqrt{a - \sqrt{a^2 + b^2}} \, d} +$$

$$\frac{b B \operatorname{Log}\left[a + \sqrt{a^2 + b^2} + b \operatorname{Tan}[c + d x] - \sqrt{2} \sqrt{a + \sqrt{a^2 + b^2}} \sqrt{a + b \operatorname{Tan}[c + d x]}\right]}{2 \sqrt{2} \sqrt{a + \sqrt{a^2 + b^2}} \, d} -$$

$$\frac{b B \operatorname{Log}\left[a + \sqrt{a^2 + b^2} + b \operatorname{Tan}[c + d x] + \sqrt{2} \sqrt{a + \sqrt{a^2 + b^2}} \sqrt{a + b \operatorname{Tan}[c + d x]}\right]}{2 \sqrt{2} \sqrt{a + \sqrt{a^2 + b^2}} \, d}$$

Result (type 3, 88 leaves):

$$-\frac{i B \left(\sqrt{a - i b} \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a-i b}}\right] - \sqrt{a + i b} \operatorname{ArcTanh}\left[\frac{\sqrt{a+b \operatorname{Tan}[c+d x]}}{\sqrt{a+i b}}\right]\right)}{d}$$

Problem 366: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{a B + b B \operatorname{Tan}[c + d x]}{(a + b \operatorname{Tan}[c + d x])^{3/2}} \, dx$$

Optimal (type 3, 406 leaves, 12 steps):

$$\frac{b\,B\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}-\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-\frac{b\,B\,\text{ArcTanh}\left[\frac{\sqrt{a+\sqrt{a^2+b^2}}+\sqrt{2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-\sqrt{a^2+b^2}}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a-\sqrt{a^2+b^2}}\,d}-$$

$$\frac{b\,B\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]-\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}+$$

$$\frac{b\,B\,\text{Log}\left[a+\sqrt{a^2+b^2}+b\,\text{Tan}[c+d\,x]+\sqrt{2}\,\sqrt{a+\sqrt{a^2+b^2}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right]}{2\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{a+\sqrt{a^2+b^2}}\,d}$$

Result (type 3, 88 leaves):

$$-\frac{i\,B\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}}\right)}{d}$$

■ **Problem 367: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]\,(a\,B+b\,B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 119 leaves, 12 steps):

$$-\frac{2\,B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,d}+\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\,d}+\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a+i\,b}}\right]}{\sqrt{a+i\,b}\,d}$$

Result (type 4, 9462 leaves):

$$\Bigg(4\,B\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d x]\left(\frac{\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\Bigg/$$

$$\left(d\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\left(\frac{1}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}}\right.$$

$$2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ +$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ -$$

$$\frac{1}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}-\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}+\frac{1}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}}$$

$$2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}-\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}\right)^{3/2}}$$

$$2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\left(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\right.$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\text{EllipticPi}\Bigg[$$

$$\left.\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)+$$

$$\Bigg(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\text{Sec}[c+d\,x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\Bigg(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\Bigg(\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}}4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\text{Sec}[c+d x]}\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left(\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg/\right.$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1-\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{\mathrm{i}\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\right.$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\Bigg/\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}$$

$$\left.\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\right)\sqrt{a+b\,\text{Tan}[c+d x]}\right)$$

- **Problem 369: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d x]\,(a B+b B\,\text{Tan}[c+d x])}{(a+b\,\text{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 154 leaves, 13 steps):

$$-\frac{2 B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{3/2} d}+\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{(a-i b)^{3/2} d}+\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{(a+i b)^{3/2} d}+\frac{2 b^2 B}{a\left(a^2+b^2\right) d\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 17418 leaves):

$$B\left(\frac{\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(\frac{2 b^2}{a^2(a-i b)(a+i b)}-\frac{2 b^3\,\text{Sin}[c+d x]}{a^2(a-i b)(a+i b)(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)}{d\,(a+b\,\text{Tan}[c+d x])^{3/2}}-\right.$$

$$\left(4\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(a^2+b^2\right) \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathbb{i}\, a\, b\, \text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathbb{i}\, a\, b\, \text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2 \text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d x]^{3/2}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\left(\frac{a\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}}{2\,(a-\mathbb{i}\, b)\,(a+\mathbb{i}\, b)\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\right.$$

$$\frac{b^2 \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]}}{a (a-i b) (a+i b) \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\frac{a \operatorname{Cos}[2 (c+d x)] \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]}}{2 (a-i b) (a+i b) \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-$$

$$\left.\frac{b \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[2 (c+d x)]}{2 (a-i b) (a+i b) \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)$$

$$\left(1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right) \sqrt{\frac{b-\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}$$

$$\left.\sqrt{\frac{1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1-\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]^2}} \sqrt{\frac{a+2 b \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]^2}{1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]^2}}\right) \Big/$$

$$\left(a (a-i b) (a+i b) d \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \left(-2 b \operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]+a \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]^2\right)\right)\right.$$

$$\left(\left(4 \left(-b^2 \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$\left(a^2+b^2\right) \operatorname{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2 \operatorname{EllipticPi}\left[-\frac{i \left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right], \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left.b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\,\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)^2\right)-$$

$$\left(2\left(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(a^2+b^2\right)\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\,\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,a\,b\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\mathrm{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\mathrm{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)\ \mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2$$

$$\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\Bigg)\Bigg/$$

$$\Bigg(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)+$$

$$
\begin{aligned}
&\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\\
&\quad\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\\
&\quad a^2\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\\
&\quad \mathbb{i}\,a\,b\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-\\
&\quad a^2\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\\
&\quad \mathbb{i}\,a\,b\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\\
&\quad a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\\
&\quad b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)
\end{aligned}
$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\bigg/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)^{3/2}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(2\left(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\left(a^2+b^2\right)\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$i\,a\,b\,\text{EllipticPi}\Big[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$a^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Big/$$

$$\Bigg(a\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(2\Bigg(-b^2\,\text{EllipticF}\left[\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right)\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\Bigg)\Bigg/$$

$$\Bigg(a\,(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\ \sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\Bigg)-$$

$$\Bigg(2\,\Bigg(-b^2\,\text{EllipticF}\Big[\text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]+$$

$$\left(a^2+b^2\right)\text{EllipticPi}\Big[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\ \text{ArcSin}\Big[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Big],\ \frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\Big]-$$

$$a^2\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$i\,a\,b\,\text{EllipticPi}\left[-\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\,\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\;\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left(\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\Bigg/\left(a\,(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\right.$$

$$\left.\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\Bigg(2\Bigg(-b^2\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$\left(a^2+b^2\right)\mathrm{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{a-b-\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$\mathbb{i}\,a\,b\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]-$$

$$a^2\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$i\,a\,b\,\text{EllipticPi}\left[\frac{i\left(a+b+\sqrt{a^2+b^2}\right)}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$a^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]+$$

$$b^2\,\text{EllipticPi}\left[\frac{a+b+\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right],\frac{a+\sqrt{a^2+b^2}}{a-\sqrt{a^2+b^2}}\right]\Bigg)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)$$

$$\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Bigg/$$

$$\left(a\,(a-i\,b)\,(a+i\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right.$$

$$\left.\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(4\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{\frac{b-\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(-a-b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\sqrt{-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}$$

$$\left(-\left(b^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right.$$

$$\left.\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}\right)\right)\right/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)+$$

$$\left(b^2 \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)\right) \Bigg/$$

$$\left(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \left(1-\frac{1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]}{-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right) \left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right) \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right) -$$

$$\left(a^2 \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)\right) \Bigg/$$

$$\left(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \left(1-\frac{i \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right) \left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right) \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}}\right) +$$

$$\left(i\, a\, b \left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{2 \left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)^2}\right)\right) \Bigg/$$

$$\left(2 \sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right) \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right) \left(-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}} \left(1-\frac{i \left(1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)\right.$$

$$\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\Bigg)-$$

$$\left(a^2\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)-$$

$$\left(i\,a\,b\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\left(1+\frac{i\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right.$$

$$\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}}\right)+$$

$$\left(\left(a^2+b^2\right)\left(\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}{2\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}\right)\right)\Big/$$

$$\left(2\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-b-\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)\right.$$

$$\left.\left.\left.\sqrt{1-\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\sqrt{1-\frac{\left(a+\sqrt{a^2+b^2}\right)\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a-\sqrt{a^2+b^2}\right)\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\right)\right)\right)\Big/$$

$$\left(\left(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\sqrt{\frac{\left(-a+b+\sqrt{a^2+b^2}\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}{\left(a+b+\sqrt{a^2+b^2}\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}}\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)(a+\right.$$

$$\left.\left.b\,\mathrm{Tan}[c+d x])^{3/2}\right)\right)$$

Problem 372: Result more than twice size of optimal antiderivative.

$$\int \frac{-a+b\,\mathrm{Tan}[c+d x]}{(a+b\,\mathrm{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 174 leaves, 9 steps):

$$\frac{(\mathrm{i}\,a-b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a-\mathrm{i}\,b}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,d}-\frac{(\mathrm{i}\,a+b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}{\sqrt{a+\mathrm{i}\,b}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,d}+\frac{4\,a\,b}{3\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d x])^{3/2}}+\frac{2\,b\left(3\,a^2-b^2\right)}{\left(a^2+b^2\right)^2 d\sqrt{a+b\,\mathrm{Tan}[c+d x]}}$$

Result (type 3, 606 leaves):

$$\Big(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-\frac{2 b (11 a^2-3 b^2)}{3 a (a-i b)^2 (a+i b)^2}-\frac{4 a b^3}{3 (a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{2 (13 a^2 b^2 \text{Sin}[c+d x]-3 b^4 \text{Sin}[c+d x])}{3 a (a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right) (-a+b \text{Tan}[c+d x])\Big) \Big/ \left(d (a \text{Cos}[c+d x]-b \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^{5/2}\right)+$$

$$\left(\text{Sec}[c+d x]^{3/2} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{5/2} (-a+b \text{Tan}[c+d x]) \left(-\frac{i (a^3-3 a b^2) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{(-3 a^2 b+b^3) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a-i b}}\right]}{\sqrt{a-i b}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{a+i b}}\right]}{\sqrt{a+i b}}\right) \sqrt{a+b \text{Tan}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)\right) \Big/ \left((a-i b)^2 (a+i b)^2 d (a \text{Cos}[c+d x]-b \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^{5/2}\right)$$

- **Problem 373: Result more than twice size of optimal antiderivative.**

$$\int \frac{1+i \text{Tan}[c+d x]}{\sqrt{a+b \text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 45 leaves, 3 steps) :

$$-\frac{2\,i\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\;d}$$

Result (type 3, 128 leaves) :

$$-\frac{i\,\text{Log}\left[\frac{2\left(-i\,b\,e^{2\,i\,(c+d\,x)}+a\left(1+e^{2\,i\,(c+d\,x)}\right)+\sqrt{a-i\,b}\,\left(1+e^{2\,i\,(c+d\,x)}\right)\sqrt{a-\frac{i\,b\left(-1+e^{2\,i\,(c+d\,x)}\right)}{1+e^{2\,i\,(c+d\,x)}}}\right)}{\sqrt{a-i\,b}}\right]}{\sqrt{a-i\,b}\;d}$$

- **Problem 375: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{3+\text{Tan}[x]}{\sqrt{4+3\,\text{Tan}[x]}}\,dx$$

Optimal (type 3, 30 leaves, 2 steps) :

$$-\sqrt{2}\;\text{ArcTan}\left[\frac{1-3\,\text{Tan}[x]}{\sqrt{2}\,\sqrt{4+3\,\text{Tan}[x]}}\right]$$

Result (type 3, 69 leaves) :

$$\left(\frac{1}{5}-\frac{3\,i}{5}\right)\sqrt{4-3\,i}\;\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[x]}}{\sqrt{4-3\,i}}\right]+\left(\frac{1}{5}+\frac{3\,i}{5}\right)\sqrt{4+3\,i}\;\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[x]}}{\sqrt{4+3\,i}}\right]$$

- **Problem 376: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1-3\,\text{Tan}[x]}{\sqrt{4+3\,\text{Tan}[x]}}\,dx$$

Optimal (type 3, 27 leaves, 2 steps) :

$$\sqrt{2}\;\text{ArcTanh}\left[\frac{3+\text{Tan}[x]}{\sqrt{2}\,\sqrt{4+3\,\text{Tan}[x]}}\right]$$

Result (type 3, 65 leaves) :

$$\frac{1}{5}\left((3+i)\,\sqrt{4-3\,i}\;\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[x]}}{\sqrt{4-3\,i}}\right]+(3-i)\,\sqrt{4+3\,i}\;\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[x]}}{\sqrt{4+3\,i}}\right]\right)$$

- **Problem 377: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{4-3\,\text{Tan}[a+b\,x]}{\sqrt{4+3\,\text{Tan}[a+b\,x]}}\,dx$$

Optimal (type 3, 85 leaves, 5 steps) :

$$-\frac{9\,\text{ArcTan}\left[\frac{1-3\,\text{Tan}[a+b\,x]}{\sqrt{2}\,\sqrt{4+3\,\text{Tan}[a+b\,x]}}\right]}{5\,\sqrt{2}\,b}+\frac{13\,\text{ArcTanh}\left[\frac{3+\text{Tan}[a+b\,x]}{\sqrt{2}\,\sqrt{4+3\,\text{Tan}[a+b\,x]}}\right]}{5\,\sqrt{2}\,b}$$

Result (type 3, 76 leaves) :

$$\frac{(24-7\,i)\,\sqrt{4-3\,i}\,\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[a+b\,x]}}{\sqrt{4-3\,i}}\right]+(24+7\,i)\,\sqrt{4+3\,i}\,\text{ArcTanh}\left[\frac{\sqrt{4+3\,\text{Tan}[a+b\,x]}}{\sqrt{4+3\,i}}\right]}{25\,b}$$

Problem 398: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[c+d\,x]^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{a+b\,\text{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 325 leaves, 16 steps) :

$$\frac{(a\,(A-B)+b\,(A+B))\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,(a^2+b^2)\,d}-\frac{(a\,(A-B)+b\,(A+B))\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,(a^2+b^2)\,d}-$$

$$\frac{2\,a^{5/2}\,(A\,b-a\,B)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{b^{5/2}\,(a^2+b^2)\,d}+\frac{(b\,(A-B)-a\,(A+B))\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,(a^2+b^2)\,d}-$$

$$\frac{(b\,(A-B)-a\,(A+B))\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,(a^2+b^2)\,d}+\frac{2\,(A\,b-a\,B)\,\sqrt{\text{Tan}[c+d\,x]}}{b^2\,d}+\frac{2\,B\,\text{Tan}[c+d\,x]^{3/2}}{3\,b\,d}$$

Result (type 3, 744 leaves) :

$$\frac{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\sqrt{\text{Tan}[c+d\,x]}\,\,(A+B\,\text{Tan}[c+d\,x])\,\left(\frac{2\,(A\,b-a\,B)}{b^2}+\frac{2\,B\,\text{Tan}[c+d\,x]}{3\,b}\right)}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])}-$$

$$\frac{1}{2\,b^2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])}(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])$$

$$(A+B\,\text{Tan}[c+d\,x])\left(\frac{2\,\left(2\,a\,A\,b-2\,a^2\,B+b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]\,\text{Csc}[c+d\,x]\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{a}\,\sqrt{b}\,\,(b+a\,\text{Cot}[c+d\,x])\,\left(1+\text{Tan}[c+d\,x]^2\right)^2}+\right.$$

$$\frac{1}{4\,\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d\,x])\,\left(1+\text{Tan}[c+d\,x]^2\right)}A\,b^2\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]$$

$$(a+b\,\text{Tan}[c+d\,x])+\frac{1}{2\,\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d\,x])\,\left(1-\text{Tan}[c+d\,x]^2\right)\,\left(1+\text{Tan}[c+d\,x]^2\right)}b^2\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]$$

$$\left(\frac{4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^3\,(a+b\,\text{Tan}[c+d\,x])\right)$$

- **Problem 403: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])}\,dx$$

Optimal (type 3, 325 leaves, 16 steps):

$$-\frac{(b\ (A-B)-a\ (A+B))\ \text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d\ x]}\ \right]}{\sqrt{2}\ \left(a^2+b^2\right)\ d}+\frac{(b\ (A-B)-a\ (A+B))\ \text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d\ x]}\ \right]}{\sqrt{2}\ \left(a^2+b^2\right)\ d}+$$

$$\frac{2\ b^{5/2}\ (A\ b-a\ B)\ \text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d\ x]}}{\sqrt{a}}\right]}{a^{5/2}\ \left(a^2+b^2\right)\ d}+\frac{(a\ (A-B)+b\ (A+B))\ \text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d\ x]}\ +\text{Tan}[c+d\ x]\right]}{2\ \sqrt{2}\ \left(a^2+b^2\right)\ d}-$$

$$\frac{(a\ (A-B)+b\ (A+B))\ \text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d\ x]}\ +\text{Tan}[c+d\ x]\right]}{2\ \sqrt{2}\ \left(a^2+b^2\right)\ d}-\frac{2\ A}{3\ a\ d\ \text{Tan}[c+d\ x]^{3/2}}+\frac{2\ (A\ b-a\ B)}{a^2\ d\ \sqrt{\text{Tan}[c+d\ x]}}$$

Result (type 3, 773 leaves) :

$$\left(\left(\frac{2 A}{3 a}-\frac{2 (-A b \text{Cos}[c+d x]+a B \text{Cos}[c+d x]) \text{Csc}[c+d x]}{a^2}-\frac{2 A \text{Csc}[c+d x]^2}{3 a}\right)\right.$$

$$\left.(a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])\right) \Big/ (d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x]))+$$

$$\frac{1}{2 a^2 d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (A+B \text{Tan}[c+d x])$$

$$\left(\frac{2 \left(-a^2 A+2 A b^2-2 a b B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right] \text{Csc}[c+d x] \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])}{\sqrt{a} \sqrt{b} (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)^2}-\right.$$

$$\frac{1}{4 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)} a^2 B \text{Csc}[c+d x]^2$$

$$\left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+\right.\right.$$

$$\left.\left.(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)]$$

$$(a+b \text{Tan}[c+d x])+\frac{1}{2 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1-\text{Tan}[c+d x]^2\right) \left(1+\text{Tan}[c+d x]^2\right)} a^2 A \text{Cos}[2 (c+d x)] \text{Csc}[c+d x]$$

$$\left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+\right.\right.$$

$$\left.\left.\left.(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])\right)$$

- **Problem 404: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x]^{5/2} (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 436 leaves, 16 steps) :

$$\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+$$

$$\frac{a^{3/2} \left(a^2 A b+5 A b^3-3 a^3 B-7 a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{b^{5/2} \left(a^2+b^2\right)^2 d}+\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(a A b-3 a^2 B-2 b^2 B\right) \sqrt{\text{Tan}[c+d x]}}{b^2 \left(a^2+b^2\right) d}+\frac{a (A b-a B) \text{Tan}[c+d x]^{3/2}}{b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 882 leaves) :

$$\Big(\text{Sec}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$

$$\left(\frac{-a A b+3 a^2 B+2 b^2 B}{(a-i b)\ (a+i b)\ b^2}+\frac{a A b\,\text{Sin}[c+d x]-a^2 B\,\text{Sin}[c+d x]}{(a-i b)\ (a+i b)\ b\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\sqrt{\text{Tan}[c+d x]}\ (A+B\,\text{Tan}[c+d x])\Big)\Big/$$

$$\left(d\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\ (a+b\,\text{Tan}[c+d x])^2\right)-\Big(\text{Sec}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\ (A+B\,\text{Tan}[c+d x])$$

$$\Bigg(\left(2\ \left(-a^2 A b-A b^3+3 a^3 B+3 a b^2 B\right)\text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]\text{Csc}[c+d x]\ \text{Sec}[c+d x]^3\ (a+b\,\text{Tan}[c+d x])\right)\Big/$$

$$\left(\sqrt{a}\ \sqrt{b}\ (b+a\,\text{Cot}[c+d x])\ \left(1+\text{Tan}[c+d x]^2\right)^2\right)+\frac{1}{4\ \left(a^2+b^2\right)\ (b+a\,\text{Cot}[c+d x])\ \left(1+\text{Tan}[c+d x]^2\right)}\left(a A b^2+b^3 B\right)\text{Csc}[c+d x]^2$$

$$\Big(-8\sqrt{a}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2}\ \Big(-2\ (a+b)\ \text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}\right]+2\ (a+b)\ \text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}\right]+$$

$$(a-b)\ \left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\Big)\Big)\ \text{Sec}[c+d x]^2\ \text{Sin}[2\ (c+d x)]$$

$$(a+b\,\text{Tan}[c+d x])-\frac{1}{2\ \left(a^2+b^2\right)\ (b+a\,\text{Cot}[c+d x])\ \left(1-\text{Tan}[c+d x]^2\right)\ \left(1+\text{Tan}[c+d x]^2\right)}\left(A b^3-a b^2 B\right)\text{Cos}[2\ (c+d x)]\ \text{Csc}[c+d x]$$

$$\Bigg(\frac{4\ \left(a^2-b^2\right)\ \text{ArcTan}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\ \sqrt{b}}+\sqrt{2}\ \Big(2\ (a-b)\ \text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}\right]-2\ (a-b)\ \text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}\right]+(a+b)$$

$$\left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\Big)\Bigg)\ \text{Sec}[c+d x]^3\ (a+b\,\text{Tan}[c+d x])\Bigg)\Big)\Big/$$

$$\left(2\ (a-i b)\ (a+i b)\ b^2\ d\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\ (a+b\,\text{Tan}[c+d x])^2\right)$$

- **Problem 405: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+d x]^{3/2}\ (A+B\,\text{Tan}[c+d x])}{(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 391 leaves, 15 steps) :

$$-\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$

$$\frac{\sqrt{a}\,\left(a^2\,A\,b-3\,A\,b^3+a^3\,B+5\,a\,b^2\,B\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{b^{3/2}\,\left(a^2+b^2\right)^2\,d}+\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-$$

$$\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d\,x]}+\mathrm{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+\frac{a\,(A\,b-a\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{b\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 849 leaves) :

$$\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-\frac{-A b+a B}{(a-i b) (a+i b) b}+\frac{-A b \text{Sin}[c+d x]+a B \text{Sin}[c+d x]}{(a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right) \sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])\right)\Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)-\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A+B \text{Tan}[c+d x]) \left(\frac{2 \left(-a^2 B-b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right] \text{Csc}[c+d x] \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])}{\sqrt{a} \sqrt{b} (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)^2}+\frac{1}{4 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)} \left(-A b^2+a b B\right) \text{Csc}[c+d x]^2 \left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)] (a+b \text{Tan}[c+d x])-\frac{1}{2 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1-\text{Tan}[c+d x]^2\right) \left(1+\text{Tan}[c+d x]^2\right)} \left(a A b+b^2 B\right) \text{Cos}[2 (c+d x)] \text{Csc}[c+d x] \left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])\right)\right)\Big/ \left(2 (a-i b) (a+i b) b d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)$$

- **Problem 406: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 391 leaves, 15 steps):

$$-\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(3 a^2 A b-A b^3-a^3 B+3 a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b} \left(a^2+b^2\right)^2 d}-\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}+$$

$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{(A b-a B) \sqrt{\text{Tan}[c+d x]}}{\left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 750 leaves):

$$\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(\frac{-A b+a B}{a (a-i b) (a+i b)}+\frac{A b^2 \text{Sin}[c+d x]-a b B \text{Sin}[c+d x]}{a (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)\right.$$
$$\left.\sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)+$$

$$\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A+B \text{Tan}[c+d x]) \left(\frac{1}{4 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)} (a A+b B) \text{Csc}[c+d x]^2\right.\right.$$
$$\left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+\right.\right.$$
$$\left.\left.(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)]$$
$$(a+b \text{Tan}[c+d x])-\frac{1}{2 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1-\text{Tan}[c+d x]^2\right) \left(1+\text{Tan}[c+d x]^2\right)} (A b-a B) \text{Cos}[2 (c+d x)] \text{Csc}[c+d x]$$
$$\left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a+b)\right.\right.$$
$$\left.\left.\left.\left.\left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])\right)\right) \Big/$$
$$\left(2 (a-i b) (a+i b) d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)$$

- **Problem 407: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Tan}[c+d\,x]}\,\left(a+b\,\text{Tan}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 391 leaves, 15 steps):

$$\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$
$$\frac{\sqrt{b}\,\left(5\,a^2\,A\,b+A\,b^3-3\,a^3\,B+a\,b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a}}\right]}{a^{3/2}\,\left(a^2+b^2\right)^2\,d}-\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$
$$\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d\,x]}+\text{Tan}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+\frac{b\,(A\,b-a\,B)\,\sqrt{\text{Tan}[c+d\,x]}}{a\,\left(a^2+b^2\right)\,d\,\left(a+b\,\text{Tan}[c+d\,x]\right)}$$

Result (type 3, 856 leaves):

$$\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(-\frac{b (-A b+a B)}{a^2 (a-i b) (a+i b)}+\frac{-A b^3 \text{Sin}[c+d x]+a b^2 B \text{Sin}[c+d x]}{a^2 (a-i b) (a+i b) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right) \sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)+\left(\text{Sec}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A+B \text{Tan}[c+d x]) \left(\frac{2 \left(a^2 A+A b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right] \text{Csc}[c+d x] \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])}{\sqrt{a} \sqrt{b} (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)^2}+\frac{1}{4 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)} \left(-a A b+a^2 B\right) \text{Csc}[c+d x]^2 \left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)] (a+b \text{Tan}[c+d x])-\frac{1}{2 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1-\text{Tan}[c+d x]^2\right) \left(1+\text{Tan}[c+d x]^2\right)} \left(a^2 A+a b B\right) \text{Cos}[2 (c+d x)] \text{Csc}[c+d x] \left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])\right)\right) \Big/ \left(2 a (a-i b) (a+i b) d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^2\right)$$

- **Problem 408: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B \text{Tan}[c+d x]}{\text{Tan}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 439 leaves, 16 steps):

$$\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{b^{3/2} \left(7 a^2 A b+3 A b^3-5 a^3 B-a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{5/2} \left(a^2+b^2\right)^2 d}+\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{2 a^2 A+3 A b^2-a b B}{a^2 \left(a^2+b^2\right) d \sqrt{\text{Tan}[c+d x]}}+\frac{b (A b-a B)}{a \left(a^2+b^2\right) d \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])}$$

Result (type 3, 880 leaves) :

$$\left(\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right.$$
$$\left.\left(\frac{b^2\,(-A b+a B)}{a^3\,\left(a^2+b^2\right)}-\frac{2\,A\,\text{Cot}[c+d x]}{a^2}+\frac{A\,b^4\,\text{Sin}[c+d x]-a\,b^3\,B\,\text{Sin}[c+d x]}{a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\sqrt{\text{Tan}[c+d x]}\,\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^2\right)-\left(\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\,(A+B\,\text{Tan}[c+d x])\right.$$
$$\left(\left(2\,\left(3\,a^2\,A\,b+3\,A\,b^3-a^3\,B-a\,b^2\,B\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]\text{Csc}[c+d x]\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\right)\Big/\right.$$
$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d x])\,\left(1+\text{Tan}[c+d x]^2\right)^2\right)+\frac{1}{4\,\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d x])\,\left(1+\text{Tan}[c+d x]^2\right)}\left(a^3\,A+a^2\,b\,B\right)\text{Csc}[c+d x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+\right.\right.$$
$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]$$
$$(a+b\,\text{Tan}[c+d x])-\frac{1}{2\,\left(a^2+b^2\right)\,(b+a\,\text{Cot}[c+d x])\,\left(1-\text{Tan}[c+d x]^2\right)\,\left(1+\text{Tan}[c+d x]^2\right)}\left(a^2\,A\,b-a^3\,B\right)\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]$$
$$\left(\frac{4\,\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+(a+b)\right.\right.$$
$$\left.\left.\left.\left.\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\right)\right)\Big/$$
$$\left(2\,a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^2\right)$$

- **Problem 409: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\text{Tan}[c+d x]^{5/2}\,(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 493 leaves, 17 steps) :

$$-\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+$$

$$\frac{b^{5/2} \left(9 a^2 A b+5 A b^3-7 a^3 B-3 a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{a^{7/2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{2 a^2 A+5 A b^2-3 a b B}{3 a^2 \left(a^2+b^2\right) d \text{Tan}[c+d x]^{3/2}}+\frac{4 a^2 A b+5 A b^3-2 a^3 B-3 a b^2 B}{a^3 \left(a^2+b^2\right) d \sqrt{\text{Tan}[c+d x]}}+\frac{b (A b-a B)}{a \left(a^2+b^2\right) d \text{Tan}[c+d x]^{3/2} (a+b \text{Tan}[c+d x])}$$

Result (type 3, 956 leaves) :

$$\left(\mathrm{Sec}[c+d x]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\left(\frac{2 a^4 A+2 a^2 A b^2+3 A b^4-3 a b^3 B}{3 a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)}-\frac{2\,(-2 A b\,\mathrm{Cos}[c+d x]+a B\,\mathrm{Cos}[c+d x])\,\mathrm{Csc}[c+d x]}{a^3}-\frac{2 A\,\mathrm{Csc}[c+d x]^2}{3 a^2}+\frac{-A b^5\,\mathrm{Sin}[c+d x]+a b^4 B\,\mathrm{Sin}[c+d x]}{a^4\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])}\right)\sqrt{\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^2\right)+\Bigg(\mathrm{Sec}[c+d x]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2\,(A+B\,\mathrm{Tan}[c+d x])$$

$$\Bigg(\left(2\left(-a^4 A+4 a^2 A b^2+5 A b^4-3 a^3 b B-3 a b^3 B\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d x]\,\mathrm{Sec}[c+d x]^3\,(a+b\,\mathrm{Tan}[c+d x])\right)\Big/$$

$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d x])\left(1+\mathrm{Tan}[c+d x]^2\right)^2\right)+\frac{1}{4\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d x])\left(1+\mathrm{Tan}[c+d x]^2\right)}\left(a^3 A b-a^4 B\right)\mathrm{Csc}[c+d x]^2$$

$$\Bigg(-8\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2}\,\Big(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+$$

$$(a-b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\Big)\Bigg)\,\mathrm{Sec}[c+d x]^2\,\mathrm{Sin}[2\,(c+d x)]$$

$$(a+b\,\mathrm{Tan}[c+d x])-\frac{1}{2\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d x])\left(1-\mathrm{Tan}[c+d x]^2\right)\left(1+\mathrm{Tan}[c+d x]^2\right)}\left(-a^4 A-a^3 b B\right)\mathrm{Cos}[2\,(c+d x)]\,\mathrm{Csc}[c+d x]$$

$$\Bigg(\frac{4\left(a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\Big(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+(a+b)$$

$$\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\Big)\Bigg)\,\mathrm{Sec}[c+d x]^3\,(a+b\,\mathrm{Tan}[c+d x])\Bigg)\Bigg)\Big/$$

$$\left(2 a^3\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^2\right)$$

- **Problem 410: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Tan}[c+d x]^{7/2}\,(A+B\,\mathrm{Tan}[c+d x])}{(a+b\,\mathrm{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 600 leaves, 17 steps):

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{a^{3/2} \left(3 a^4 A b+6 a^2 A b^3+35 A b^5-15 a^5 B-46 a^3 b^2 B-63 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 b^{7/2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^3 A b+11 a A b^3-15 a^4 B-31 a^2 b^2 B-8 b^4 B\right) \sqrt{\text{Tan}[c+d x]}}{4 b^3 \left(a^2+b^2\right)^2 d}+$$

$$\frac{a (A b-a B) \text{Tan}[c+d x]^{5/2}}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{a \left(a^2 A b+9 A b^3-5 a^3 B-13 a b^2 B\right) \text{Tan}[c+d x]^{3/2}}{4 b^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1034 leaves) :

$$\Bigg(\mathrm{Sec}[c+d x]^2\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^3$$

$$\left(\frac{-3 a^3 A b-13 a A b^3+15 a^4 B+33 a^2 b^2 B+8 b^4 B}{4\,(a-i b)^2\,(a+i b)^2\,b^3}-\frac{a^3\,(-A b+a B)}{2\,(a-i b)^2\,(a+i b)^2\,b\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^2}+\right.$$

$$\left.\frac{a^3 A b\,\mathrm{Sin}[c+d x]+13 a A b^3\,\mathrm{Sin}[c+d x]-5 a^4 B\,\mathrm{Sin}[c+d x]-17 a^2 b^2 B\,\mathrm{Sin}[c+d x]}{4\,(a-i b)^2\,(a+i b)^2\,b^2\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])}\right)\sqrt{\mathrm{Tan}[c+d x]}\,(A+B\,\mathrm{Tan}[c+d x])\Bigg)\Big/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^3\right)-\Bigg(\mathrm{Sec}[c+d x]^2\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])^3\,(A+B\,\mathrm{Tan}[c+d x])$$

$$\Bigg(\left(2\left(-3 a^4 A b-7 a^2 A b^3-4 A b^5+15 a^5 B+31 a^3 b^2 B+16 a b^4 B\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]\mathrm{Csc}[c+d x]\,\mathrm{Sec}[c+d x]^3\,(a+b\,\mathrm{Tan}[c+d x])\right)\Big/$$

$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\mathrm{Cot}[c+d x])\left(1+\mathrm{Tan}[c+d x]^2\right)^2\right)+$$

$$\frac{1}{4\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d x])\left(1+\mathrm{Tan}[c+d x]^2\right)}\left(8 a A b^4-4 a^2 b^3 B+4 b^5 B\right)\mathrm{Csc}[c+d x]^2\left(-8\sqrt{a}\,\sqrt{b}\,\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]+\right.$$

$$\sqrt{2}\left(-2\,(a+b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+2\,(a+b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+(a-b)\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\right.\right.\right.$$

$$\left.\left.\left.\left.\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\right)\right)\mathrm{Sec}[c+d x]^2\,\mathrm{Sin}[2\,(c+d x)]\,(a+b\,\mathrm{Tan}[c+d x])-$$

$$\frac{1}{2\left(a^2+b^2\right)(b+a\,\mathrm{Cot}[c+d x])\left(1-\mathrm{Tan}[c+d x]^2\right)\left(1+\mathrm{Tan}[c+d x]^2\right)}\left(-4 a^2 A b^3+4 A b^5-8 a b^4 B\right)\mathrm{Cos}[2\,(c+d x)]\,\mathrm{Csc}[c+d x]$$

$$\left(\frac{4\left(a^2-b^2\right)\mathrm{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\left(2\,(a-b)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]-2\,(a-b)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}\right]+(a+b)\right.\right.$$

$$\left.\left.\left(\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\right)\right)\mathrm{Sec}[c+d x]^3\,(a+b\,\mathrm{Tan}[c+d x])\Bigg)\Bigg)\Big/$$

$$\left(8\,(a-i b)^2\,(a+i b)^2\,b^3\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^3\right)$$

- **Problem 411: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Tan}[c+d x]^{5/2}\,(A+B\,\mathrm{Tan}[c+d x])}{(a+b\,\mathrm{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 534 leaves, 16 steps) :

$$\frac{\left(a^3 (A-B) - 3 a b^2 (A-B) + 3 a^2 b (A+B) - b^3 (A+B)\right) \text{ArcTan}\left[1 - \sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d} -$$

$$\frac{\left(a^3 (A-B) - 3 a b^2 (A-B) + 3 a^2 b (A+B) - b^3 (A+B)\right) \text{ArcTan}\left[1 + \sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d} +$$

$$\frac{\sqrt{a} \left(a^4 A b + 18 a^2 A b^3 - 15 A b^5 + 3 a^5 B + 6 a^3 b^2 B + 35 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 b^{5/2} \left(a^2+b^2\right)^3 d} +$$

$$\frac{\left(3 a^2 b (A-B) - b^3 (A-B) - a^3 (A+B) + 3 a b^2 (A+B)\right) \text{Log}\left[1 - \sqrt{2} \sqrt{\text{Tan}[c+d x]} + \text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d} -$$

$$\frac{\left(3 a^2 b (A-B) - b^3 (A-B) - a^3 (A+B) + 3 a b^2 (A+B)\right) \text{Log}\left[1 + \sqrt{2} \sqrt{\text{Tan}[c+d x]} + \text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d} +$$

$$\frac{a (A b - a B) \text{Tan}[c+d x]^{3/2}}{2 b \left(a^2+b^2\right) d (a + b \text{Tan}[c+d x])^2} - \frac{a \left(a^2 A b - 7 A b^3 + 3 a^3 B + 11 a b^2 B\right) \sqrt{\text{Tan}[c+d x]}}{4 b^2 \left(a^2+b^2\right)^2 d (a + b \text{Tan}[c+d x])}$$

Result (type 3, 1007 leaves) :

$$\Bigg(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,\Bigg(-\frac{a^2 A b-9 A b^3+3 a^3 B+13 a b^2 B}{4\,(a-i b)^2\,(a+i b)^2\,b^2}+\frac{a^2\,(-A b+a B)}{2\,(a-i b)^2\,(a+i b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+$$

$$\frac{3 a^2 A b\,\text{Sin}[c+d x]-9 A b^3\,\text{Sin}[c+d x]+a^3 B\,\text{Sin}[c+d x]+13 a b^2 B\,\text{Sin}[c+d x]}{4\,(a-i b)^2\,(a+i b)^2\,b\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\Bigg)\,\sqrt{\text{Tan}[c+d x]}\,\,(A+B\,\text{Tan}[c+d x])\Bigg)\Big/$$

$$\Big(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\Big)+\Bigg(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(A+B\,\text{Tan}[c+d x])$$

$$\Bigg(\Bigg(2\,\big(a^3 A b+a A b^3+3 a^4 B+7 a^2 b^2 B+4 b^4 B\big)\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]\,\text{Csc}[c+d x]\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\Bigg)\Big/$$

$$\Big(\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d x])\,\big(1+\text{Tan}[c+d x]^2\big)^2\Big)+$$

$$\frac{1}{4\,\big(a^2+b^2\big)\,(b+a\,\text{Cot}[c+d x])\,\big(1+\text{Tan}[c+d x]^2\big)}\,\big(-4 a^2 A b^2+4 A b^4-8 a b^3 B\big)\,\text{Csc}[c+d x]^2\,\Bigg(-8\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]+$$

$$\sqrt{2}\,\Big(-2\,(a+b)\,\text{ArcTan}\Big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\Big]+2\,(a+b)\,\text{ArcTan}\Big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\Big]+(a-b)\,\Big(\text{Log}\Big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+$$

$$\text{Tan}[c+d x]\Big]-\text{Log}\Big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\Big]\Big)\Big)\Bigg)\,\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\,(a+b\,\text{Tan}[c+d x])-$$

$$\frac{1}{2\,\big(a^2+b^2\big)\,(b+a\,\text{Cot}[c+d x])\,\big(1-\text{Tan}[c+d x]^2\big)\,\big(1+\text{Tan}[c+d x]^2\big)}\,\big(-8 a A b^3+4 a^2 b^2 B-4 b^4 B\big)\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]$$

$$\Bigg(\frac{4\,\big(a^2-b^2\big)\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\Big(2\,(a-b)\,\text{ArcTan}\Big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\Big]-2\,(a-b)\,\text{ArcTan}\Big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\Big]+(a+b)$$

$$\Big(\text{Log}\Big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\Big]-\text{Log}\Big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\Big]\Big)\Big)\Bigg)\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\Bigg)\Bigg)\Big/$$

$$\Big(8\,(a-i b)^2\,(a+i b)^2\,b^2\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\Big)$$

- **Problem 412: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[c+d x]^{3/2}\,(A+B\,\text{Tan}[c+d x])}{(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 533 leaves, 16 steps):

$$-\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^4 A b-26 a^2 A b^3+3 A b^5+a^5 B+18 a^3 b^2 B-15 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 \sqrt{a}\, b^{3/2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{a (A b-a B) \sqrt{\text{Tan}[c+d x]}}{2 b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{\left(3 a^2 A b-5 A b^3+a^3 B+9 a b^2 B\right) \sqrt{\text{Tan}[c+d x]}}{4 b \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 997 leaves) :

$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 \left(-\frac{-5 a^2 A b+5 A b^3+a^3 B-9 a b^2 B}{4 a (a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 b}-\frac{a b (-A b+a B)}{2 (a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+\frac{-7 a^2 A b \text{Sin}[c+d x]+5 A b^3 \text{Sin}[c+d x]+3 a^3 B \text{Sin}[c+d x]-9 a b^2 B \text{Sin}[c+d x]}{4 a (a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right) \sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)+$$

$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A+B \text{Tan}[c+d x]) \left(\frac{2 \left(-a^2 A b-A b^3+a^3 B+a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right] \text{Csc}[c+d x] \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])}{\sqrt{a} \sqrt{b} (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)^2}+\right.\right.$$

$$\frac{1}{4 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1+\text{Tan}[c+d x]^2\right)} \left(8 a A b^2-4 a^2 b B+4 b^3 B\right) \text{Csc}[c+d x]^2 \left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)] (a+b \text{Tan}[c+d x])-$$

$$\frac{1}{2 \left(a^2+b^2\right) (b+a \text{Cot}[c+d x]) \left(1-\text{Tan}[c+d x]^2\right) \left(1+\text{Tan}[c+d x]^2\right)} \left(-4 a^2 A b+4 A b^3-8 a b^2 B\right) \text{Cos}[2 (c+d x)] \text{Csc}[c+d x] \left(\frac{4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]-2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]+(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^3 (a+b \text{Tan}[c+d x])\Bigg)\Bigg) \Big/$$

$$\left(8 (a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 b d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])^3\right)$$

- **Problem 413: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\sqrt{\text{Tan}[c+d x]} (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 531 leaves, 16 steps) :

$$-\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(15 a^4 A b-18 a^2 A b^3-A b^5-3 a^5 B+26 a^3 b^2 B-3 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{3/2} \sqrt{b} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{(A b-a B) \sqrt{\text{Tan}[c+d x]}}{2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}-\frac{\left(7 a^2 A b-A b^3-3 a^3 B+5 a b^2 B\right) \sqrt{\text{Tan}[c+d x]}}{4 a \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 998 leaves) :

$$\left(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\left(\frac{-9 a^2 A b+A b^3+5 a^3 B-5 a b^2 B}{4 a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{b^2\,(-A b+a B)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\right.\right.$$

$$\left.\left.\frac{11 a^2 A b^2\,\text{Sin}[c+d x]-A b^4\,\text{Sin}[c+d x]-7 a^3 b B\,\text{Sin}[c+d x]+5 a b^3 B\,\text{Sin}[c+d x]}{4 a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\sqrt{\text{Tan}[c+d x]}\,\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)+\left(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(A+B\,\text{Tan}[c+d x])\right.$$

$$\left(\frac{2\left(a^2 A b+A b^3-a^3 B-a b^2 B\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]\text{Csc}[c+d x]\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])}{\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d x])\left(1+\text{Tan}[c+d x]^2\right)^2}+\right.$$

$$\frac{1}{4\left(a^2+b^2\right)(b+a\,\text{Cot}[c+d x])\left(1+\text{Tan}[c+d x]^2\right)}\left(4 a^3 A-4 a A b^2+8 a^2 b B\right)\text{Csc}[c+d x]^2\left(-8\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]+\right.$$

$$\sqrt{2}\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+(a-b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\right.\right.\right.$$

$$\left.\left.\left.\left.\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\,(a+b\,\text{Tan}[c+d x])-$$

$$\frac{1}{2\left(a^2+b^2\right)(b+a\,\text{Cot}[c+d x])\left(1-\text{Tan}[c+d x]^2\right)\left(1+\text{Tan}[c+d x]^2\right)}\left(8 a^2 A b-4 a^3 B+4 a b^2 B\right)\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]$$

$$\left(\frac{4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\left(2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]-2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\right]+(a+b)\right.\right.$$

$$\left.\left.\left.\left.\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\right)\right)\Big/$$

$$\left(8 a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)$$

- **Problem 414: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\sqrt{\text{Tan}[c+d x]}\,\,(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 534 leaves, 16 steps) :

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\sqrt{b} \left(35 a^4 A b+6 a^2 A b^3+3 A b^5-15 a^5 B+18 a^3 b^2 B+a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{5/2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{b (A b-a B) \sqrt{\text{Tan}[c+d x]}}{2 a \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])^2}+\frac{b \left(11 a^2 A b+3 A b^3-7 a^3 B+a b^2 B\right) \sqrt{\text{Tan}[c+d x]}}{4 a^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1018 leaves) :

$$\left(\mathrm{Sec}[c+d x]^2 (a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])^3 \left(-\frac{b \left(-13 a^2 A b-3 A b^3+9 a^3 B-a b^2 B\right)}{4 a^3 (a-i b)^2 (a+i b)^2}-\frac{b^3 (-A b+a B)}{2 a (a-i b)^2 (a+i b)^2 (a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])^2}+\frac{-15 a^2 A b^3 \mathrm{Sin}[c+d x]-3 A b^5 \mathrm{Sin}[c+d x]+11 a^3 b^2 B \mathrm{Sin}[c+d x]-a b^4 B \mathrm{Sin}[c+d x]}{4 a^3 (a-i b)^2 (a+i b)^2 (a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])}\right) \sqrt{\mathrm{Tan}[c+d x]} (A+B \mathrm{Tan}[c+d x])\right) \Big/ \left(d (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x]) (a+b \mathrm{Tan}[c+d x])^3\right)+$$

$$\left(\mathrm{Sec}[c+d x]^2 (a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])^3 (A+B \mathrm{Tan}[c+d x]) \left(\left(2 \left(4 a^4 A+7 a^2 A b^2+3 A b^4+a^3 b B+a b^3 B\right) \mathrm{ArcTan}\left[\frac{\sqrt{b} \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right] \mathrm{Csc}[c+d x] \mathrm{Sec}[c+d x]^3 (a+b \mathrm{Tan}[c+d x])\right) \Big/ \left(\sqrt{a} \sqrt{b} (b+a \mathrm{Cot}[c+d x]) \left(1+\mathrm{Tan}[c+d x]^2\right)^2\right)+\frac{1}{4 \left(a^2+b^2\right) (b+a \mathrm{Cot}[c+d x]) \left(1+\mathrm{Tan}[c+d x]^2\right)} \left(-8 a^3 A b+4 a^4 B-4 a^2 b^2 B\right) \mathrm{Csc}[c+d x]^2 \left(-8 \sqrt{a} \sqrt{b} \mathrm{ArcTan}\left[\frac{\sqrt{b} \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]+\sqrt{2} \left(-2 (a+b) \mathrm{ArcTan}\left[1-\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}\right]+2 (a+b) \mathrm{ArcTan}\left[1+\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}\right]+(a-b) \left(\mathrm{Log}\left[1-\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\right)\right) \mathrm{Sec}[c+d x]^2 \mathrm{Sin}[2 (c+d x)] (a+b \mathrm{Tan}[c+d x])-\frac{1}{2 \left(a^2+b^2\right) (b+a \mathrm{Cot}[c+d x]) \left(1-\mathrm{Tan}[c+d x]^2\right) \left(1+\mathrm{Tan}[c+d x]^2\right)} \left(4 a^4 A-4 a^2 A b^2+8 a^3 b B\right) \mathrm{Cos}[2 (c+d x)] \mathrm{Csc}[c+d x] \left(\frac{4 \left(a^2-b^2\right) \mathrm{ArcTan}\left[\frac{\sqrt{b} \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a}}\right]}{\sqrt{a} \sqrt{b}}+\sqrt{2} \left(2 (a-b) \mathrm{ArcTan}\left[1-\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}\right]-2 (a-b) \mathrm{ArcTan}\left[1+\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}\right]+(a+b) \left(\mathrm{Log}\left[1-\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]-\mathrm{Log}\left[1+\sqrt{2} \sqrt{\mathrm{Tan}[c+d x]}+\mathrm{Tan}[c+d x]\right]\right)\right)\right) \mathrm{Sec}[c+d x]^3 (a+b \mathrm{Tan}[c+d x])\right)\right) \Big/ \left(8 a^2 (a-i b)^2 (a+i b)^2 d (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x]) (a+b \mathrm{Tan}[c+d x])^3\right)$$

Problem 415: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{A+B \mathrm{Tan}[c+d x]}{\mathrm{Tan}[c+d x]^{3/2} (a+b \mathrm{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 601 leaves, 17 steps):

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{b^{3/2} \left(63 a^4 A b+46 a^2 A b^3+15 A b^5-35 a^5 B-6 a^3 b^2 B-3 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\right]}{4 a^{7/2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-\frac{8 a^4 A+31 a^2 A b^2+15 A b^4-11 a^3 b B-3 a b^3 B}{4 a^3 \left(a^2+b^2\right)^2 d \sqrt{\text{Tan}[c+d x]}}+$$

$$\frac{b (A b-a B)}{2 a \left(a^2+b^2\right) d \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])^2}+\frac{b \left(13 a^2 A b+5 A b^3-9 a^3 B-a b^2 B\right)}{4 a^2 \left(a^2+b^2\right)^2 d \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])}$$

Result (type 3, 1043 leaves) :

$$\Bigg(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3$$
$$\Bigg(\frac{b^2\,(-17\,a^2\,A\,b-7\,A\,b^3+13\,a^3\,B+3\,a\,b^2\,B)}{4\,a^4\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,A\,\text{Cot}[c+d x]}{a^3}+\frac{b^4\,(-A\,b+a\,B)}{2\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+$$
$$\frac{19\,a^2\,A\,b^4\,\text{Sin}[c+d x]+7\,A\,b^6\,\text{Sin}[c+d x]-15\,a^3\,b^3\,B\,\text{Sin}[c+d x]-3\,a\,b^5\,B\,\text{Sin}[c+d x]}{4\,a^4\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\Bigg)\sqrt{\text{Tan}[c+d x]}\,(A+B\,\text{Tan}[c+d x])\Bigg)\Bigg/$$
$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)-\Bigg(\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\,(A+B\,\text{Tan}[c+d x])$$
$$\Bigg(\Bigg(2\,(16\,a^4\,A\,b+31\,a^2\,A\,b^3+15\,A\,b^5-4\,a^5\,B-7\,a^3\,b^2\,B-3\,a\,b^4\,B)\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]\,\text{Csc}[c+d x]\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\Bigg)\Bigg/$$
$$\left(\sqrt{a}\,\sqrt{b}\,(b+a\,\text{Cot}[c+d x])\,\left(1+\text{Tan}[c+d x]^2\right)^2\right)+$$
$$\frac{1}{4\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d x])\,\left(1+\text{Tan}[c+d x]^2\right)}\,(4\,a^5\,A-4\,a^3\,A\,b^2+8\,a^4\,b\,B)\,\text{Csc}[c+d x]^2\,\Bigg(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]+$$
$$\sqrt{2}\,\Big(-2\,(a+b)\,\text{ArcTan}\big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\big]+2\,(a+b)\,\text{ArcTan}\big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\big]+(a-b)\,\Big(\text{Log}\big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+$$
$$\text{Tan}[c+d x]\big]-\text{Log}\big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\big]\Big)\Big)\Bigg)\,\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\,(a+b\,\text{Tan}[c+d x])-$$
$$\frac{1}{2\,(a^2+b^2)\,(b+a\,\text{Cot}[c+d x])\,\left(1-\text{Tan}[c+d x]^2\right)\,\left(1+\text{Tan}[c+d x]^2\right)}\,(8\,a^4\,A\,b-4\,a^5\,B+4\,a^3\,b^2\,B)\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]$$
$$\Bigg(\frac{4\,(a^2-b^2)\,\text{ArcTan}\Big[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a}}\Big]}{\sqrt{a}\,\sqrt{b}}+\sqrt{2}\,\Big(2\,(a-b)\,\text{ArcTan}\big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\big]-2\,(a-b)\,\text{ArcTan}\big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}\big]+(a+b)$$
$$\Big(\text{Log}\big[1-\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\big]-\text{Log}\big[1+\sqrt{2}\,\sqrt{\text{Tan}[c+d x]}+\text{Tan}[c+d x]\big]\Big)\Big)\Bigg)\,\text{Sec}[c+d x]^3\,(a+b\,\text{Tan}[c+d x])\Bigg)\Bigg)\Bigg/$$
$$\left(8\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\,(a+b\,\text{Tan}[c+d x])^3\right)$$

- **Problem 427: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d x]}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 264 leaves, 14 steps):

$$\frac{\sqrt{i\,a-b}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{\left(4\,a\,A\,b-a^2\,B-8\,b^2\,B\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{4\,b^{3/2}\,d}+$$

$$\frac{\sqrt{i\,a+b}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{(4\,A\,b-a\,B)\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,b\,d}+\frac{B\,\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{2\,b\,d}$$

Result (type 4, 85 695 leaves) : Display of huge result suppressed!

- **Problem 428: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 201 leaves, 13 steps) :

$$\frac{\sqrt{i\,a-b}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{(2\,A\,b+a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{b}\,d}-$$

$$\frac{\sqrt{i\,a+b}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{B\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 69 837 leaves) : Display of huge result suppressed!

- **Problem 429: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])}{\sqrt{\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 169 leaves, 12 steps) :

$$-\frac{\sqrt{i\,a-b}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{2\,\sqrt{b}\,B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{\sqrt{i\,a+b}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}$$

Result (type 4, 12 343 leaves) :

$$\Bigg(4\,a\,\text{Cos}[c+d\,x]$$

$$\left(\frac{}{}\text{A EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,\text{B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{A b EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\text{a B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{b B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} - \frac{a\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} +$$

$$\frac{i\, b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right) \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{A\,\text{Csc}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}} + B\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)$$

$$\left.\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\right) \Big/$$

$$\left(\sqrt{a^2+b^2}\, d\, \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(-\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,a\right.$$

$$\left(A\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathrm{i}\, a\, A\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{a\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} +$$

$$\frac{\mathrm{i}\, b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^{5/2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}} +$$

$$\left(a^2\left(A\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\,a\left(A\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$2\,a\left(A\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathrm{i}\, a\, A\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{a\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} +$$

$$\frac{\mathrm{i}\, b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}} - \frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}}$$

$$2\,a\left(\text{A EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{\text{b B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{A b EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\text{a B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{b B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$4\,a\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-\left(a\,A\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/$$

$$\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a\,b\,B\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\Bigg(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a\,A\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\Bigg(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^2\,A\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\Bigg(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+i\,\left(b+\sqrt{a^2+b^2}\right)\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}\,-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a^2 B \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(4\sqrt{2}\sqrt{a^2+b^2}\left(-i a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(i a b B \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(4\sqrt{2}\sqrt{a^2+b^2}\left(-i a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(i a^2 A \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(4\sqrt{2}\sqrt{a^2+b^2}\left(i a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a A b \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Big/ \left(4\sqrt{2}\sqrt{a^2+b^2}\left(i a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2\,B\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(i\,a\,b\,B\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)+\left(a\,b\,B\right.$$

$$\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\Bigg)\Bigg/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 430: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,\left(A+B\,\mathrm{Tan}[c+d\,x]\right)}{\mathrm{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 154 leaves, 8 steps):

$$-\frac{\sqrt{i\,a-b}\,\left(A+i\,B\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{\sqrt{i\,a+b}\,\left(A-i\,B\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,A\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4869 leaves):

$$-\frac{2\,A\,\mathrm{Cos}[c+d\,x]\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,\sqrt{\mathrm{Tan}[c+d\,x]}}+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathrm{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{A\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\left.\frac{a\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\sqrt{a+b\,\text{Tan}[c+d\,x]}\;(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])$$

$$\Bigg(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\text{Tan}[c+d\,x]^{3/2}}\,2\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\;\Bigg(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\Bigg[\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Bigg[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\;\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\Bigg[\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\;\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}-$$

$$\Bigg(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\;\Bigg(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\Bigg[\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Bigg],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(i(A b+a B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathbb{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathbb{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a - i b) (A - i B) \text{EllipticPi}\left[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\Bigg) \sqrt{\text{Sec}[c + d x]}$$

$$(b \text{Cos}[c + d x] - a \text{Sin}[c + d x]) \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} - \frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]} \sqrt{\text{Tan}[c + d x]}} 4 \text{Cos}\left[\frac{1}{2} (c + d x)\right]$$

$$\sqrt{\frac{b + \sqrt{a^2 + b^2} + a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}} \Bigg(i (A b + a B) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] -$$

$$(a + i b) (A + i B) \text{EllipticPi}\left[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] + (a - i b) (A - i B)$$

$$\text{EllipticPi}\left[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\Bigg) \sqrt{\text{Sec}[c + d x]} \text{Sin}\left[\frac{1}{2} (c + d x)\right] \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]} \sqrt{\text{Tan}[c + d x]}} 2 \text{Cos}\left[\frac{1}{2} (c + d x)\right]^2 \sqrt{\frac{b + \sqrt{a^2 + b^2} + a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b + \sqrt{a^2 + b^2}}}$$

$$\sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}} \Bigg(i (A b + a B) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] -$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d x]}\right.$$

$$\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A b+a B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a-i b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{\text{Tan}[c+d\,x]}\right)$$

Problem 431: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}\ (A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 199 leaves, 9 steps):

$$\frac{\sqrt{i\,a-b}\ (i\,A-B)\ \text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+$$

$$\frac{\sqrt{i\,a+b}\ (i\,A+B)\ \text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,A\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}-\frac{2\,(A\,b+3\,a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{3\,a\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4932 leaves):

$$-\left(\left(4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Cos}[c+d\,x]\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left((a\,A-b\,B)\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(-\frac{a\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\frac{A\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\left(A+B\,\text{Tan}[c+d\,x]\right)\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)\,\left(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]\right)\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\text{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left((a\,A-b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(i\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left((a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right.$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\right)-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,3\,\mathrm{i}\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a\,A-b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]$$

$$\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\Big[$$

$$\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left((a\,A-b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \left(-\frac{i\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,A-b\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\left(\mathrm{Cos}[c+d\,x]\left(\frac{2A}{3}-\frac{2\,(A\,b\,\mathrm{Cos}[c+d\,x]+3\,a\,B\,\mathrm{Cos}[c+d\,x])\,\mathrm{Csc}[c+d\,x]}{3\,a}-\frac{2}{3}A\,\mathrm{Csc}[c+d\,x]^2\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

- **Problem 432: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 250 leaves, 10 steps):

$$\frac{\sqrt{i\,a-b}\,(A+i\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{\sqrt{i\,a+b}\,(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{2A\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}-\frac{2\,(A\,b+5\,a\,B)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,a\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\left(15\,a^2A+2\,A\,b^2-5\,a\,b\,B\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,a^2\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 4972 leaves):

$$-\left(\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(-\frac{A\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{A\,b\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\frac{a\,A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}\;+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right.$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\right)-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,(A+i\,B)\right.$$

$$\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\right.$$

$$\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\,(A\,b+a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d\,x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A\,b+a\,B)\ \text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\,\sqrt{\text{Tan}[c+d\,x]}\right)\right)+$$

$$\left(\text{Cos}[c+d\,x]\,\left(\frac{2\,(A\,b+5\,a\,B)}{15\,a}+\frac{2\,\left(18\,a^2\,A\,\text{Cos}[c+d\,x]+2\,A\,b^2\,\text{Cos}[c+d\,x]-5\,a\,b\,B\,\text{Cos}[c+d\,x]\right)\,\text{Csc}[c+d\,x]}{15\,a^2}-\right.\right.$$

$$\left.\frac{2\,(A\,b+5\,a\,B)\,\text{Csc}[c+d\,x]^2}{15\,a}-\frac{2}{5}\,A\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\ \left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 433: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 314 leaves, 11 steps):

$$-\frac{\sqrt{i\,a-b}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{\sqrt{i\,a+b}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,A\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{7\,d\,\text{Tan}[c+d\,x]^{7/2}}-$$

$$\frac{2\,(A\,b+7\,a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{35\,a\,d\,\text{Tan}[c+d\,x]^{5/2}}+\frac{2\,\left(35\,a^2\,A+4\,A\,b^2-7\,a\,b\,B\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,a^2\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{2\,\left(35\,a^2\,A\,b-8\,A\,b^3+105\,a^3\,B+14\,a\,b^2\,B\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,a^3\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 5051 leaves):

$$\left(4\, i\, \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \text{Cos}[c+d x] \sqrt{\frac{b+\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left((a A-b B)\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\, b)(A+i\, B)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\, b)(A-i\, B)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} \left(\frac{a A\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}-\frac{b B\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}+\right.$$

$$\frac{a A\, \text{Cos}[2(c+d x)]\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}-\frac{b B\, \text{Cos}[2(c+d x)]\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}+$$

$$\left.\frac{A b\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}+\frac{a B\, \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}}\right)$$

$$\left.\sqrt{a+b\, \text{Tan}[c+d x]}\, (A+B\, \text{Tan}[c+d x])\right) \Big/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\, (a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x])\, (A\, \text{Cos}[c+d x]+B\, \text{Sin}[c+d x])\right)$$

$$\Bigg(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{i}\,\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\,\Bigg((a\,A-b\,B)\,\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}-$$

$$\Bigg(\mathrm{i}\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\,\Bigg((a\,A-b\,B)\,\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg((a A-b B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]$$

$$\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a\,A-b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a\,A-b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathrm{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,A-b\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\mathrm{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\text{Cos}[c+d\,x]\left(-\frac{2\left(50\,a^2\,A+4\,A\,b^2-7\,a\,b\,B\right)}{105\,a^2}+1\Big/\left(105\,a^3\right)4\left(19\,a^2\,A\,b\,\text{Cos}[c+d\,x]-4\,A\,b^3\,\text{Cos}[c+d\,x]+63\,a^3\,B\,\text{Cos}[c+d\,x]+7\,a\,b^2\,B\,\text{Cos}[c+d\,x]\right)\right.\right.$$

$$\left.\text{Csc}[c+d\,x]+\frac{2\left(65\,a^2\,A+4\,A\,b^2-7\,a\,b\,B\right)\text{Csc}[c+d\,x]^2}{105\,a^2}-\frac{2\,(A\,b\,\text{Cos}[c+d\,x]+7\,a\,B\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]^3}{35\,a}-\frac{2}{7}\,A\,\text{Csc}[c+d\,x]^4\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 434: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 323 leaves, 15 steps) :

$$\frac{(i a-b)^{3/2} (A+i B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}+\frac{\left(6 a^2 A b-16 A b^3-a^3 B-24 a b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{8 b^{3/2} d}+$$

$$\frac{(i a+b)^{3/2} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}+\frac{\left(6 a A b-a^2 B-8 b^2 B\right) \sqrt{\text{Tan}[c+d x]} \sqrt{a+b \text{Tan}[c+d x]}}{8 b d}+$$

$$\frac{(6 A b-a B) \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])^{3/2}}{12 b d}+\frac{B \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])^{5/2}}{3 b d}$$

Result (type 4, 122510 leaves) : Display of huge result suppressed!

- **Problem 435: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{\text{Tan}[c+d x]} (a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 268 leaves, 14 steps) :

$$\frac{(a+i b)^2 (i A-B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\, d}+\frac{\left(12 a A b+3 a^2 B-8 b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{4 \sqrt{b}\, d}+$$

$$\frac{(i a+b)^{3/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}+\frac{(4 A b+5 a B) \sqrt{\text{Tan}[c+d x]} \sqrt{a+b \text{Tan}[c+d x]}}{4 d}+\frac{b B \text{Tan}[c+d x]^{3/2} \sqrt{a+b \text{Tan}[c+d x]}}{2 d}$$

Result (type 4, 106626 leaves) : Display of huge result suppressed!

- **Problem 436: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x])}{\sqrt{\text{Tan}[c+d x]}} \, dx$$

Optimal (type 3, 204 leaves, 13 steps) :

$$-\frac{(i a-b)^{3/2} (A+i B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}+\frac{\sqrt{b} (2 A b+3 a B) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}-$$

$$\frac{(i a+b)^{3/2} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}+\frac{b B \sqrt{\text{Tan}[c+d x]} \sqrt{a+b \text{Tan}[c+d x]}}{d}$$

Result (type 4, 96488 leaves) : Display of huge result suppressed!

- **Problem 437: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x])}{\text{Tan}[c+d x]^{3/2}} \, dx$$

Optimal (type 3, 209 leaves, 13 steps):

$$-\frac{(a+i b)^2 (i A-B) \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\, d}+\frac{2 b^{3/2} B \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{(i a+b)^{3/2} (i A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{2 a A \sqrt{a+b \operatorname{Tan}[c+d x]}}{d \sqrt{\operatorname{Tan}[c+d x]}}$$

Result (type 4, 86 483 leaves): Display of huge result suppressed!

Problem 438: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b \operatorname{Tan}[c+d x])^{3/2} (A+B \operatorname{Tan}[c+d x])}{\operatorname{Tan}[c+d x]^{5/2}} \, dx$$

Optimal (type 3, 196 leaves, 9 steps):

$$\frac{(i a-b)^{3/2} (A+i B) \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{(i a+b)^{3/2} (A-i B) \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}-\frac{2 a A \sqrt{a+b \operatorname{Tan}[c+d x]}}{3 d \operatorname{Tan}[c+d x]^{3/2}}-\frac{2 (4 A b+3 a B) \sqrt{a+b \operatorname{Tan}[c+d x]}}{3 d \sqrt{\operatorname{Tan}[c+d x]}}$$

Result (type 4, 5254 leaves):

$$-\left(\left(4 i \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Cos}[c+d x]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left((a^2 A-A b^2-2 a b B) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(-\frac{a^2 A \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{A b^2 \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\right.$$

$$\frac{a b B \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{a^2 A \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\frac{A b^2 \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{a b B \text{Cos}[2(c+d x)] \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-$$

$$\frac{a A b \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{a^2 B \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\left.\frac{b^2 B \text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]} \text{Sin}[2(c+d x)] \sqrt{\text{Tan}[c+d x]}}{2\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)(a+b \text{Tan}[c+d x])^{3/2}(A+B \text{Tan}[c+d x])\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\,(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\, \text{Tan}[c+d x]^{3/2}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\left(a^2 A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(\mathrm{i}\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\left(a^2 A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\;\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2 A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^2(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right.$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\right)-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2 A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\;+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\Bigg(\left(a^2A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\left(a^2 A - A b^2 - 2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 (A-i B) \text{EllipticPi}\left[\right.$$

$$\left.\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x] + b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2} + a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^2 A - A b^2 - 2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \left(-\frac{i\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\left(\mathrm{Cos}[c+d\,x]^2\,\left(\frac{2\,a\,A}{3}-\frac{2}{3}\,(4\,A\,b\,\mathrm{Cos}[c+d\,x]+3\,a\,B\,\mathrm{Cos}[c+d\,x])\,\mathrm{Csc}[c+d\,x]-\frac{2}{3}\,a\,A\,\mathrm{Csc}[c+d\,x]^2\right)\right.$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}$$
$$(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}$$
$$\left.(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\ (d$$
$$(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$
$$(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x]))$$

- **Problem 439: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 259 leaves, 10 steps) :

$$\frac{(a+\mathrm{i}\,b)^2\,(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{\mathrm{i}\,a-b}\,d}+\frac{(\mathrm{i}\,a+b)^{3/2}\,(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{2\,a\,A\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{5\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}-\frac{2\,(6\,A\,b+5\,a\,B)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,\left(15\,a^2\,A-3\,A\,b^2-20\,a\,b\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{15\,a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5302 leaves) :

$$-\left(\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{a\,A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{b^2\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a\,A\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{a^2\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b^2\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a^2 A \,\text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2 (c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}}-\frac{A b^2 \,\text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2 (c+d x)] \sqrt{\text{Tan}[c+d x]}}{2 \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}}-$$

$$\left.\left.\frac{a b B \,\text{Csc}[c+d x] \sqrt{\text{Sec}[c+d x]}\, \text{Sin}[2 (c+d x)] \sqrt{\text{Tan}[c+d x]}}{\sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}}\right) (a+b \,\text{Tan}[c+d x])^{3/2} (A+B \,\text{Tan}[c+d x])\right) \Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\, (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])^2 (A \,\text{Cos}[c+d x]+B \,\text{Sin}[c+d x])\right.$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]}\, \text{Tan}[c+d x]^{3/2}} 2 \,\text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \,\text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\mathbb{i} \left(2 a A b+a^2 B-b^2 B\right) \text{EllipticF}\left[\mathbb{i} \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i} b)^2 (A+\mathbb{i} B) \,\text{EllipticPi}\left[-\frac{\mathbb{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i} b)^2 (A-\mathbb{i} B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{5/2} \,\text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}+$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right.$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\right)-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\text{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)^2\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)^2\,(A-\text{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\text{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\mathrm{Sec}[c+d\,x]}\,\left(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(\mathrm{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Bigg[$$

$$\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(i\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)^2\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\left(\mathrm{Cos}[c+d\,x]^2\,\left(\frac{2}{15}\,(6\,A\,b+5\,a\,B)+\frac{2\,\left(18\,a^2\,A\,\mathrm{Cos}[c+d\,x]-3\,A\,b^2\,\mathrm{Cos}[c+d\,x]-20\,a\,b\,B\,\mathrm{Cos}[c+d\,x]\right)\,\mathrm{Csc}[c+d\,x]}{15\,a}-\right.\right.$$

$$\frac{2}{15}\,(6\,A\,b+5\,a\,B)\,\mathrm{Csc}[c+d\,x]^2-$$

$$\left.\frac{2}{5}\,a\,A\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\Big(d$$

$$(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$
$$(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\Big)$$

- **Problem 440: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 311 leaves, 11 steps):

$$-\frac{(i\,a-b)^{3/2}\,(A+i\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{(i\,a+b)^{3/2}\,(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,A\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{7\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}-\frac{2\,(8\,A\,b+7\,a\,B)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{35\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}+$$

$$\frac{2\,\left(35\,a^2\,A-3\,A\,b^2-42\,a\,b\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\,\left(140\,a^2\,A\,b+6\,A\,b^3+105\,a^3\,B-21\,a\,b^2\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a^2\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5373 leaves):

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(\frac{a^2\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{A\,b^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{a\,A\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\left.\frac{b^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\text{Tan}[c+d\,x]^{3/2}}2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\left(\mathrm{i}\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(i\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^2(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 (A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\, \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}}\, 2 i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2 A - A b^2 - 2 a b B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^2 (A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-i b)^2 (A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d x]}\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\, 4 i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\left(a^2 A-A b^2-2 a b B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\left(a^2 A-A b^2-2 a b B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{\mathrm{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+\mathrm{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-\mathrm{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(\text{Cos}[c+d\,x]^2\left(-\frac{2\,\left(50\,a^2\,A-3\,A\,b^2-42\,a\,b\,B\right)}{105\,a}+1\Big/\left(105\,a^2\right)2\,\left(164\,a^2\,A\,b\,\text{Cos}[c+d\,x]+6\,A\,b^3\,\text{Cos}[c+d\,x]+\right.\right.\right.$$

$$\left.126\,a^3\,B\,\text{Cos}[c+d\,x]-21\,a\,b^2\,B\,\text{Cos}[c+d\,x]\right)\,\text{Csc}[c+d\,x]+$$

$$\left.\frac{2\,\left(65\,a^2\,A-3\,A\,b^2-42\,a\,b\,B\right)\,\text{Csc}[c+d\,x]^2}{105\,a}-\frac{2}{35}\,(8\,A\,b\,\text{Cos}[c+d\,x]+7\,a\,B\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]^3-\frac{2}{7}\,a\,A\,\text{Csc}[c+d\,x]^4\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\ (d$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])$$
$$(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))$$

- **Problem 441: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{11/2}}\,dx$$

Optimal (type 3, 382 leaves, 12 steps):

$$\frac{(\mathrm{i}\,a-b)^{3/2}\,(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{(\mathrm{i}\,a+b)^{3/2}\,(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-$$

$$\frac{2\,a\,A\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{9\,d\,\mathrm{Tan}[c+d\,x]^{9/2}}-\frac{2\,(10\,A\,b+9\,a\,B)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{63\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}+\frac{2\,\left(21\,a^2\,A-A\,b^2-24\,a\,b\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}+$$

$$\frac{2\,\left(126\,a^2\,A\,b+4\,A\,b^3+105\,a^3\,B-9\,a\,b^2\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a^2\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}-\frac{2\,\left(315\,a^4\,A-63\,a^2\,A\,b^2+8\,A\,b^4-420\,a^3\,b\,B-18\,a\,b^3\,B\right)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a^3\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5445 leaves):

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{a\,A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a^2\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{b^2\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,A\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a^2 B \operatorname{Cos}[2 (c+d x)] \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-\frac{b^2 B \operatorname{Cos}[2 (c+d x)] \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-$$

$$\frac{a^2 A \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[2 (c+d x)] \sqrt{\operatorname{Tan}[c+d x]}}{2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\frac{A b^2 \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[2 (c+d x)] \sqrt{\operatorname{Tan}[c+d x]}}{2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+$$

$$\left.\left.\frac{a b B \operatorname{Csc}[c+d x] \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[2 (c+d x)] \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\right) (a+b \operatorname{Tan}[c+d x])^{3/2} (A+B \operatorname{Tan}[c+d x])\right) \Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\, (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \operatorname{Tan}[c+d x]^{3/2}} 2 \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\mathbb{i} \left(2 a A b+a^2 B-b^2 B\right) \operatorname{EllipticF}\left[\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\left[-\frac{\mathbb{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i} b)^2 (A-\mathbb{i} B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]^{5/2}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(\mathbb{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Sec}[c+d\,x]}\right.$$

$$\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left.\left.\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$\text{Cos}[c+d\,x]^2$$
$$\left(-\frac{2\left(176\,a^2\,A\,b+4\,A\,b^3+150\,a^3\,B-9\,a\,b^2\,B\right)}{315\,a^2}-\frac{1}{315\,a^3}\right.$$
$$2\left(413\,a^4\,A\,\text{Cos}[c+d\,x]-66\,a^2\,A\,b^2\,\text{Cos}[c+d\,x]+8\,A\,b^4\,\text{Cos}[c+d\,x]-492\,a^3\,b\,B\,\text{Cos}[c+d\,x]-18\,a\,b^3\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+$$
$$\frac{2\left(226\,a^2\,A\,b+4\,A\,b^3+195\,a^3\,B-9\,a\,b^2\,B\right)\text{Csc}[c+d\,x]^2}{315\,a^2}+$$
$$\frac{2\left(133\,a^2\,A\,\text{Cos}[c+d\,x]-3\,A\,b^2\,\text{Cos}[c+d\,x]-72\,a\,b\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3}{315\,a}-$$
$$\left.\frac{2}{63}(10\,A\,b+9\,a\,B)\,\text{Csc}[c+d\,x]^4-\frac{2}{9}\,a\,A\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^4\right)$$
$$\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 442: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 397 leaves, 16 steps):

$$-\frac{(\mathrm{i}\, a-b)^{5/2} (\mathrm{i}\, A-B) \operatorname{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{\left(40 a^3 A b-320 a A b^3-5 a^4 B-240 a^2 b^2 B+128 b^4 B\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{64 b^{3/2} d}-$$

$$\frac{(\mathrm{i}\, a+b)^{5/2} (\mathrm{i}\, A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{\left(40 a^2 A b-64 A b^3-5 a^3 B-112 a b^2 B\right) \sqrt{\operatorname{Tan}[c+d x]}\, \sqrt{a+b \operatorname{Tan}[c+d x]}}{64 b d}+$$

$$\frac{\left(40 a A b-5 a^2 B-48 b^2 B\right) \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{3/2}}{96 b d}+$$

$$\frac{(8 A b-a B) \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{5/2}}{24 b d}+\frac{B \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{7/2}}{4 b d}$$

Result (type 4, 159 271 leaves) : Display of huge result suppressed !

- **Problem 443: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])\, dx$$

Optimal (type 3, 316 leaves, 15 steps) :

$$-\frac{(\mathrm{i}\, a-b)^{5/2} (A+\mathrm{i}\, B) \operatorname{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{\left(30 a^2 A b-16 A b^3+5 a^3 B-40 a b^2 B\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{8 \sqrt{b}\, d}+$$

$$\frac{(\mathrm{i}\, a+b)^{5/2} (A-\mathrm{i}\, B) \operatorname{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{\left(14 a A b+5 a^2 B-8 b^2 B\right) \sqrt{\operatorname{Tan}[c+d x]}\, \sqrt{a+b \operatorname{Tan}[c+d x]}}{8 d}+$$

$$\frac{(2 A b+3 a B) \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{3/2}}{4 d}+\frac{b B \operatorname{Tan}[c+d x]^{3/2} (a+b \operatorname{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 4, 143 376 leaves) : Display of huge result suppressed !

- **Problem 444: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Tan}[c+d x]}}\, dx$$

Optimal (type 3, 260 leaves, 14 steps) :

$$\frac{(\mathrm{i}\, a-b)^{5/2} (\mathrm{i}\, A-B) \operatorname{ArcTan}\left[\frac{\sqrt{\mathrm{i}\, a-b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{\sqrt{b}\, \left(20 a A b+15 a^2 B-8 b^2 B\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{4 d}+$$

$$\frac{(\mathrm{i}\, a+b)^{5/2} (\mathrm{i}\, A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\, a+b}\, \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d}+\frac{b (4 A b+7 a B) \sqrt{\operatorname{Tan}[c+d x]}\, \sqrt{a+b \operatorname{Tan}[c+d x]}}{4 d}+\frac{b B \sqrt{\operatorname{Tan}[c+d x]}\, (a+b \operatorname{Tan}[c+d x])^{3/2}}{2 d}$$

Result (type 4, 133 239 leaves) : Display of huge result suppressed !

- **Problem 445: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 241 leaves, 14 steps):

$$\frac{(i\,a-b)^{5/2}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{b^{3/2}\,(2\,A\,b+5\,a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{(i\,a+b)^{5/2}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{b\,(2\,a\,A+b\,B)\,\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-\frac{2\,a\,A\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 123 092 leaves): Display of huge result suppressed!

- **Problem 446: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{5/2}}\,dx$$

Optimal (type 3, 240 leaves, 14 steps):

$$-\frac{(i\,a-b)^{5/2}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{2\,b^{5/2}\,B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{(i\,a+b)^{5/2}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,(2\,A\,b+a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d\,\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d\,\text{Tan}[c+d\,x]^{3/2}}$$

Result (type 4, 113 126 leaves): Display of huge result suppressed!

- **Problem 447: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{7/2}}\,dx$$

Optimal (type 3, 247 leaves, 10 steps):

$$-\frac{(i\,a-b)^{5/2}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}+\frac{(i\,a+b)^{5/2}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,(8\,A\,b+5\,a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,d\,\text{Tan}[c+d\,x]^{3/2}}+\frac{2\,\left(15\,a^2\,A-23\,A\,b^2-35\,a\,b\,B\right)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,d\,\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{5\,d\,\text{Tan}[c+d\,x]^{5/2}}$$

Result (type 4, 5580 leaves):

$$-\left(\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{3\,a^2\,A\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^3\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{3\,a^2\,A\,b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^3\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a^3\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{a^3\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,A\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\frac{3\,a^2\,b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

$$\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(i \left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)^3 (A-i B)$$

$$\left.\left.\text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Big/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\;3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\;\sqrt{\text{Tan}[c+d\,x]}}\;2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}$$

$$(b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}}$$

$$4 \text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(i\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)^3 (A-i B) \text{EllipticPi}\left[\right.$$

$$\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(i\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)^3\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\;4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\left(\mathrm{Cos}[c+d\,x]^3\left(\frac{2}{15}\,a\,(11\,A\,b+5\,a\,B)+\frac{2}{15}\left(18\,a^2\,A\,\mathrm{Cos}[c+d\,x]-23\,A\,b^2\,\mathrm{Cos}[c+d\,x]-35\,a\,b\,B\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]-\frac{2}{15}\,a\,(11\,A\,b+5\,a\,B)\,\mathrm{Csc}[c+d\,x]^2-\frac{2}{5}\,a^2\,A\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^2\right)\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

- **Problem 448: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{9/2}}\,dx$$

Optimal (type 3, 309 leaves, 11 steps):

$$\frac{(i\,a-b)^{5/2}\,(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}+\frac{(i\,a+b)^{5/2}\,(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{d}-\frac{2\,a\,(10\,A\,b+7\,a\,B)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{35\,d\,\mathrm{Tan}[c+d\,x]^{5/2}}+$$
$$\frac{2\left(35\,a^2\,A-45\,A\,b^2-77\,a\,b\,B\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,d\,\mathrm{Tan}[c+d\,x]^{3/2}}+\frac{2\left(245\,a^2\,A\,b-15\,A\,b^3+105\,a^3\,B-161\,a\,b^2\,B\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{7\,d\,\mathrm{Tan}[c+d\,x]^{7/2}}$$

Result (type 4, 5641 leaves):

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^3\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{a^3\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,A\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{3\,a^2\,b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{a^3\,A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,A\,b^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{3\,a^2\,b\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b^3\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{3\,a^2\,A\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,b^3\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\frac{a^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(\mathrm{i}\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)^3(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^3(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^3 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{3/2} \sqrt{\text{Tan}[c+d x]}} 2 i \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}$$

$$(b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} - \frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}}$$

$$4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\left(a^3 A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^3 A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3B\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\text{Cos}[c+d\,x]^3$$

$$\left(-\frac{2}{105}\left(50\,a^2A-45\,A\,b^2-77\,a\,b\,B\right)+\frac{1}{105\,a}\right.$$

$$2\left(290\,a^2A\,b\,\text{Cos}[c+d\,x]-15\,A\,b^3\,\text{Cos}[c+d\,x]+126\,a^3B\,\text{Cos}[c+d\,x]-161\,a\,b^2B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]+$$

$$\frac{2}{105}\left(65\,a^2A-45\,A\,b^2-77\,a\,b\,B\right)\text{Csc}[c+d\,x]^2-$$

$$\frac{2}{35}\left(15\,a\,A\,b\,\text{Cos}[c+d\,x]+7\,a^2\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]^3-\frac{2}{7}\,a^2\,A\,\text{Csc}[c+d\,x]^4\Big)$$

$$\sqrt{\text{Tan}[c+d\,x]}\;(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\Big)$$

- **Problem 449: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Tan}[c+d\,x]^{11/2}}\,dx$$

Optimal (type 3, 378 leaves, 12 steps):

$$\frac{(i\,a-b)^{5/2}\,(A+i\,B)\,\text{ArcTan}\Big[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\Big]}{d}-\frac{(i\,a+b)^{5/2}\,(A-i\,B)\,\text{ArcTanh}\Big[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\Big]}{d}-\frac{2\,a\,(4\,A\,b+3\,a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{21\,d\,\text{Tan}[c+d\,x]^{7/2}}+$$

$$\frac{2\left(21\,a^2\,A-25\,A\,b^2-45\,a\,b\,B\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,d\,\text{Tan}[c+d\,x]^{5/2}}+\frac{2\left(231\,a^2\,A\,b-5\,A\,b^3+105\,a^3\,B-135\,a\,b^2\,B\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{315\,a\,d\,\text{Tan}[c+d\,x]^{3/2}}-$$

$$\frac{2\left(315\,a^4\,A-483\,a^2\,A\,b^2-10\,A\,b^4-735\,a^3\,b\,B+45\,a\,b^3\,B\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}}{315\,a^2\,d\,\sqrt{\text{Tan}[c+d\,x]}}-\frac{2\,a\,A\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{9\,d\,\text{Tan}[c+d\,x]^{9/2}}$$

Result (type 4, 5725 leaves):

$$\Bigg(4\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\text{Cos}[c+d\,x]^3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\,\Bigg(i\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a-i\,b)^3\,(A-i\,B)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(\frac{3 a^2 A b\, \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-\frac{A b^3 \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}+\right.$$

$$\frac{a^3 B \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-\frac{3 a b^2 B \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}+$$

$$\frac{3 a^2 A b \mathrm{Cos}[2(c+d x)] \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-\frac{A b^3 \mathrm{Cos}[2(c+d x)] \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}+$$

$$\frac{a^3 B \mathrm{Cos}[2(c+d x)] \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-\frac{3 a b^2 B \mathrm{Cos}[2(c+d x)] \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-$$

$$\frac{a^3 A \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \mathrm{Sin}[2(c+d x)] \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}+\frac{3 a A b^2 \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \mathrm{Sin}[2(c+d x)] \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}+$$

$$\left.\frac{3 a^2 b B \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \mathrm{Sin}[2(c+d x)] \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}-\frac{b^3 B \mathrm{Csc}[c+d x] \sqrt{\mathrm{Sec}[c+d x]} \mathrm{Sin}[2(c+d x)] \sqrt{\mathrm{Tan}[c+d x]}}{2 \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}}\right)$$

$$\left.(a+b \mathrm{Tan}[c+d x])^{5/2}(A+B \mathrm{Tan}[c+d x])\right) \Big/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,(a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x])^3 (A \mathrm{Cos}[c+d x]+B \mathrm{Sin}[c+d x])\right.$$

$$\left(-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \mathrm{Cos}[c+d x]+b \mathrm{Sin}[c+d x]}\ \mathrm{Tan}[c+d x]^{3/2}} 2 \mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(\mathrm{i}\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \mathrm{EllipticF}\left[\mathrm{i}\, \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\Bigg(\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-i\,b)^3\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(i\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)^3 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(i\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)^3 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\left(4 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Sec}[c+d x]}\right.$$

$$\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}(a+\mathrm{i} b)^3 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A+\mathrm{i} B) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-\mathrm{i} \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\frac{\mathrm{i}(a-\mathrm{i} b)^3 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A-\mathrm{i} B) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+\mathrm{i} \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right) \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/$$

$$\left.\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}\right) \sqrt{\operatorname{Tan}[c+d x]}\right)+$$

$$\frac{1}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])}$$

$$\operatorname{Cos}[c+d x]^3$$

$$\left(-\frac{2\left(326 a^2 A b-5 A b^3+150 a^3 B-135 a b^2 B\right)}{315 a}-\frac{1}{315 a^2}\right.$$

$$2\left(413 a^4 A \operatorname{Cos}[c+d x]-558 a^2 A b^2 \operatorname{Cos}[c+d x]-10 A b^4 \operatorname{Cos}[c+d x]-870 a^3 b B \operatorname{Cos}[c+d x]+45 a b^3 B \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]+$$

$$\frac{2\left(421 a^2 A b-5 A b^3+195 a^3 B-135 a b^2 B\right) \operatorname{Csc}[c+d x]^2}{315 a}+$$

$$\frac{2}{315}\left(133 a^2 A \operatorname{Cos}[c+d x]-75 A b^2 \operatorname{Cos}[c+d x]-135 a b B \operatorname{Cos}[c+d x]\right) \operatorname{Csc}[c+d x]^3-$$

$$\left.\frac{2}{63} a (19 A b + 9 a B) \operatorname{Csc}[c+d x]^4 - \frac{2}{9} a^2 A \operatorname{Cot}[c+d x] \operatorname{Csc}[c+d x]^4\right)$$

$$\sqrt{\operatorname{Tan}[c+d x]} (a+b \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])$$

- **Problem 450: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \operatorname{Tan}[c+d x])^{5/2} (A+B \operatorname{Tan}[c+d x])}{\operatorname{Tan}[c+d x]^{13/2}} \, dx$$

Optimal (type 3, 460 leaves, 13 steps):

$$-\frac{(i a-b)^{5/2} (i A-B) \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d} - \frac{(i a+b)^{5/2} (i A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{d} -$$

$$\frac{2 a (14 A b+11 a B) \sqrt{a+b \operatorname{Tan}[c+d x]}}{99 d \operatorname{Tan}[c+d x]^{9/2}} + \frac{2 \left(99 a^2 A-113 A b^2-209 a b B\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{693 d \operatorname{Tan}[c+d x]^{7/2}} +$$

$$\frac{2 \left(495 a^2 A b-5 A b^3+231 a^3 B-275 a b^2 B\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{1155 a d \operatorname{Tan}[c+d x]^{5/2}} - \frac{2 \left(1155 a^4 A-1485 a^2 A b^2-20 A b^4-2541 a^3 b B+55 a b^3 B\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{3465 a^2 d \operatorname{Tan}[c+d x]^{3/2}} -$$

$$\frac{2 \left(8085 a^4 A b-495 a^2 A b^3+40 A b^5+3465 a^5 B-5313 a^3 b^2 B-110 a b^4 B\right) \sqrt{a+b \operatorname{Tan}[c+d x]}}{3465 a^3 d \sqrt{\operatorname{Tan}[c+d x]}} - \frac{2 a A (a+b \operatorname{Tan}[c+d x])^{3/2}}{11 d \operatorname{Tan}[c+d x]^{11/2}}$$

Result (type 4, 5809 leaves):

$$-\left(\left(4 i \operatorname{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \operatorname{Cos}[c+d x]^3 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^3 (A+i B) \operatorname{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}\Bigg(-\frac{a^3\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,A\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{3\,a^2\,b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a^3\,A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,A\,b^2\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{3\,a^2\,b\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^3\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{3\,a^2\,A\,b\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^3\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a^3\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{3\,a\,b^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)$$

$$(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])$$

$$\Bigg(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{i}\,\text{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\left(\mathrm{i}\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(i\, a \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i b)^3 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^3 (A-i B)$$

$$\left.\left.\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] \sqrt{\operatorname{Sec}[c+d x]}\right)\right) \Big/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\operatorname{Tan}[c+d x]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}} 3\, i \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^3 (A-i B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\ +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}}\ 2\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \Bigg(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^3\,(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^3\,(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}$$

$$4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^3 (A-i B) \text{EllipticPi}\left[\right.$$

$$\left.\left.\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2} (c+d x)\right] \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 2 i \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^3 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \left(-\frac{i\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)+$$

$$\frac{1}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\,\mathrm{Cos}[c+d\,x]^3$$

$$\left(\frac{2\,\left(1965\,a^4\,A-2050\,a^2\,A\,b^2-20\,A\,b^4-3586\,a^3\,b\,B+55\,a\,b^3\,B\right)}{3465\,a^2}-\right.$$

$$\frac{1}{3465\,a^3}$$

$$2\,\left(10\,375\,a^4\,A\,b\,\mathrm{Cos}[c+d\,x]-510\,a^2\,A\,b^3\,\mathrm{Cos}[c+d\,x]+40\,A\,b^5\,\mathrm{Cos}[c+d\,x]+\right.$$

$$\left.4543\,a^5\,B\,\mathrm{Cos}[c+d\,x]-6138\,a^3\,b^2\,B\,\mathrm{Cos}[c+d\,x]-110\,a\,b^4\,B\,\mathrm{Cos}[c+d\,x]\right)\,\mathrm{Csc}[c+d\,x]-$$

$$\frac{2\,\left(3090\,a^4\,A-2615\,a^2\,A\,b^2-20\,A\,b^4-4631\,a^3\,b\,B+55\,a\,b^3\,B\right)\,\mathrm{Csc}[c+d\,x]^2}{3465\,a^2}+$$

$$\frac{1}{3465\,a}$$

$$2\,\left(3095\,a^2\,A\,b\,\mathrm{Cos}[c+d\,x]-15\,A\,b^3\,\mathrm{Cos}[c+d\,x]+1463\,a^3\,B\,\mathrm{Cos}[c+d\,x]-825\,a\,b^2\,B\,\mathrm{Cos}[c+d\,x]\right)$$

$$\text{Csc}[c+d x]^3+\frac{2}{693}\left(288 a^2 A-113 A b^2-209 a b B\right) \text{Csc}[c+d x]^4-$$
$$\frac{2}{99}\left(23 a A b \text{Cos}[c+d x]+11 a^2 B \text{Cos}[c+d x]\right) \text{Csc}[c+d x]^5-$$
$$\left.\frac{2}{11} a^2 A \text{Csc}[c+d x]^6\right)$$
$$\sqrt{\text{Tan}[c+d x]}\ (a+b \text{Tan}[c+d x])^{5/2}$$
$$(A+$$
$$B \text{Tan}[c+d x])$$

Problem 451: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b \text{Tan}[c+d x])^{5/2}\left(\frac{3 b B}{2 a}+B \text{Tan}[c+d x]\right)}{\text{Tan}[c+d x]^{5/2}}\, dx$$

Optimal (type 3, 253 leaves, 14 steps):

$$\frac{(i a-b)^{5/2}(2 a-3 i b) B \text{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{2 a d}+\frac{2 b^{5/2} B \text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{d}-$$
$$\frac{(2 a+3 i b)(i a+b)^{5/2} B \text{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{2 a d}-\frac{2\left(a^2+3 b^2\right) B \sqrt{a+b \text{Tan}[c+d x]}}{d \sqrt{\text{Tan}[c+d x]}}-\frac{b B (a+b \text{Tan}[c+d x])^{3/2}}{d \text{Tan}[c+d x]^{3/2}}$$

Result (type 4, 76107 leaves): Display of huge result suppressed!

Problem 452: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^{3/2}(A+B \text{Tan}[c+d x])}{\sqrt{a+b \text{Tan}[c+d x]}}\, dx$$

Optimal (type 3, 206 leaves, 13 steps):

$$-\frac{(A+i B) \text{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\, d}+\frac{(2 A b-a B) \text{ArcTanh}\left[\frac{\sqrt{b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{b^{3/2} d}-$$
$$\frac{(A-i B) \text{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\, d}+\frac{B \sqrt{\text{Tan}[c+d x]}\sqrt{a+b \text{Tan}[c+d x]}}{b d}$$

Result (type 4, 10834 leaves):

$$\frac{B (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \sqrt{\text{Tan}[c+d x]}\ (A+B \text{Tan}[c+d x])}{b d (A \text{Cos}[c+d x]+B \text{Sin}[c+d x]) \sqrt{a+b \text{Tan}[c+d x]}}+$$

$$\left(2\sqrt{a^2+b^2}\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,i\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\,b\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{A\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(b\,d\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\text{Sec}[c+d\,x]}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{\text{Tan}[c+d\,x]}\right.$$

$$\sqrt{a+b\,\text{Tan}[c+d\,x]}\left(-\left(\left(\sqrt{a^2+b^2}\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^2$$

$$\left.\sqrt{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left.\left(b\,\sqrt{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\right)\right)+$$

$$\left(a\sqrt{a^2+b^2}\,\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\right)\Big/$$

$$\left(2\,b\left(b+\sqrt{a^2+b^2}\right)\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\sqrt{a^2+b^2}\left(-B\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(b\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-\frac{1}{b\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$\sqrt{a^2+b^2}\ \mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\left(-B\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.$$

$$\frac{(2\,A\,b-a\,B)\ \mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\ \mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\ \mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,i\,A\,b\ \mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\ \mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+$$

$$\left(\sqrt{a^2+b^2}\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,i\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\right)\Big/$$

$$\left(b\,\sqrt{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{b\,\sqrt{\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\sqrt{a^2+b^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Sec}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\left(a\,B\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a\,(2\,A\,b-a\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(4\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\text{i}\,a\,A\,b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Big/\left(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\text{i}\,a+b+\sqrt{a^2+b^2}\right)\,\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-\text{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$
$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(\mathrm{i}\,a\,A\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$
$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,b\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$
$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,A\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$
$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a^2 B \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right) \Bigg/ \left(4 \sqrt{2} \sqrt{a^2+b^2} \left(a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\sqrt{a^2+b^2} \left(-B \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2 A b-a B) \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2 \mathbb{i} A b \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-\mathbb{i} a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i} a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2 b B \operatorname{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-\mathbb{i} a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i} a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\text{Sec}[c+d\,x]\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]+\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]\,\text{Tan}[c+d\,x]\right)\right)\Big/$$

$$\left.\left.\left(b\sqrt{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\sqrt{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\right)$$

- **Problem 453: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 168 leaves, 12 steps):

$$\frac{(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\,d}+\frac{2\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{b}\,d}-\frac{(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\,d}$$

Result (type 4, 6384 leaves):

$$-\left(\left(4\,a\left(-\frac{B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.\right.$$

$$\frac{(A+i\,B)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left(\frac{A\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{B\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)(A+B\,\text{Tan}[c+d\,x])\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\,d\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(\frac{1}{\sqrt{a^2+b^2}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\text{Tan}[c+d\,x]^{3/2}}\,2\,a\left(-\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.$$

$$\frac{(A+i B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d x]^{5/2}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}-\left(a^2\left(-\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.$$

$$\frac{(A+i B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathrm{i}\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(2\,a\left(-\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.\right.$$

$$\frac{(A+i\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}[c+d x]}\,(b \text{Cos}[c+d x]-a \text{Sin}[c+d x])\sqrt{\frac{a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\,\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\,\sqrt{\frac{a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}{a^2+b^2}}\,\sqrt{\text{Tan}[c+d x]}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}{a^2+b^2}}\,\sqrt{\text{Tan}[c+d x]}}\,2 a\left(-\frac{B \,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(A+\mathrm{i} B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i} a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i} a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A \,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i} a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i} a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathrm{i} B \,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i} a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i} a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}}$$

$$2\,a\left(-\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\right.$$

$$\frac{(A+i\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\text{Tan}[c+d\,x]}}\ 4\,a\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\left(a\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\ \sqrt{a^2+b^2}\ \left(-i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\ \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,A\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathbb{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\mathbb{i}\,a\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathbb{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left.\left.\left.\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)\right)\Bigg/\left(\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Bigg)\Bigg)$$

- **Problem 454: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Tan}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 123 leaves, 7 steps):

$$\frac{(A+i B)\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\,d}+\frac{(A-i B)\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\,d}$$

Result (type 4, 4376 leaves):

$$-\left(\left(\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.\right.$$

$$i(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(i A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}$$

$$\left(\frac{A\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{A\,\text{Cos}[2(c+d x)]\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\right.$$

$$\left.\left.\frac{B\,\text{Csc}[c+d x]\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[2(c+d x)]\sqrt{\text{Tan}[c+d x]}}{2\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)(A+B\,\text{Tan}[c+d x])\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\text{Tan}[c+d x]^{3/2}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(i\,A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(\sqrt{2}\,a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(i\,A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathbb{i}\,A\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\mathbb{i}\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(\mathbb{i}\,A+B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$3\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(-\mathbb{i}\,A\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathbb{i}\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(\mathrm{i}\,A+B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}}\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(-\mathrm{i}\,A\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\mathrm{i}\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(\mathrm{i}\,A+B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(-\mathrm{i}\,A\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$i (A + i B) \text{EllipticPi}\left[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] + (i A + B) \text{EllipticPi}\left[\right.$$

$$\left.\left.\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\right) \sqrt{\text{Sec}[c + d x]} \text{Sin}\left[\frac{1}{2} (c + d x)\right] \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]} \sqrt{\text{Tan}[c + d x]}} \sqrt{2} \text{Cos}\left[\frac{1}{2} (c + d x)\right]^2 \sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{2 + \frac{2 a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \left(-i A \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] +\right.$$

$$i (A + i B) \text{EllipticPi}\left[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] + (i A + B)$$

$$\left.\text{EllipticPi}\left[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\right) \text{Sec}[c + d x]^{3/2} \text{Sin}[c + d x] \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]} \sqrt{\text{Tan}[c + d x]}} 2 \sqrt{2} \text{Cos}\left[\frac{1}{2} (c + d x)\right]^2 \sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(-\frac{A\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(A+\mathbb{i}\,B)\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{\mathbb{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(\mathbb{i}\,A+B)\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right/\left(\sqrt{\text{Tan}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\right)$$

- **Problem 455: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Tan}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 159 leaves, 8 steps):

$$-\frac{(\mathbb{i}\,A-B)\;\text{ArcTan}\left[\frac{\sqrt{\mathbb{i}\,a-b}\;\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{\mathbb{i}\,a-b}\;d}+\frac{(\mathbb{i}\,A+B)\;\text{ArcTanh}\left[\frac{\sqrt{\mathbb{i}\,a+b}\;\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{\mathbb{i}\,a+b}\;d}-\frac{2\,A\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{a\,d\,\sqrt{\text{Tan}[c+d\,x]}}$$

Result (type 4, 4442 leaves):

$$-\frac{2\,A\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\;(A+B\,\text{Tan}[c+d\,x])}{a\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\;\sqrt{\text{Tan}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}}-$$

$$\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

$$\left(\frac{B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{B\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A-iB)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\Bigg(\sqrt{2}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \Bigg(-i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A-iB)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \Bigg(-i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{2}\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\sqrt{\text{Tan}[c+d x]}\right)-$$

$$\frac{1}{\sqrt{2}\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}}$$

$$3\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg(-i B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(-\mathrm{i}\,B\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}\,2\sqrt{2}\;\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(-\mathrm{i}\,B\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(-\mathrm{i}\ B\ \mathrm{EllipticF}\left[\mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(A+\mathrm{i}\ B)\ \mathrm{EllipticPi}\left[-\frac{\mathrm{i}\ \left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(A-\mathrm{i}\ B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\ \left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\ \mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\ \mathrm{Sin}[c+d\,x]\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,2\sqrt{2}\ \mathrm{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ B\,\mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathrm{i}\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+\mathrm{i}\ B)\ \mathrm{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\left(1-\mathrm{i}\ \mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+$$

$$\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-iB)\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}\right)$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}\right)\sqrt{\text{Tan}[c+dx]}\,\sqrt{a+b\,\text{Tan}[c+dx]}\right)$$

- **Problem 456: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+dx]}{\text{Tan}[c+dx]^{5/2}\sqrt{a+b\,\text{Tan}[c+dx]}}\,dx$$

Optimal (type 3, 203 leaves, 9 steps):

$$-\frac{(A+iB)\,\text{ArcTan}\left[\frac{\sqrt{ia-b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]}{\sqrt{ia-b}\,d}-\frac{(A-iB)\,\text{ArcTanh}\left[\frac{\sqrt{ia+b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]}{\sqrt{ia+b}\,d}-\frac{2A\sqrt{a+b\,\text{Tan}[c+dx]}}{3ad\,\text{Tan}[c+dx]^{3/2}}+\frac{2(2Ab-3aB)\sqrt{a+b\,\text{Tan}[c+dx]}}{3a^2d\sqrt{\text{Tan}[c+dx]}}$$

Result (type 4, 4506 leaves):

$$-\left(\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+dx)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$(-iA+B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left(-\mathrm{i}\,A-B\right)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\left(-\frac{A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,A\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\left(-\mathrm{i}\,A+B\right)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left(-\mathrm{i}\,A-B\right)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\left(\sqrt{2}\ a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left(i\ A\ \text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-i\ A+B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(-i\ A-B)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(i\ A\ \text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(-i\ A+B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(-i\ A-B)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$3\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,A-B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(-\mathrm{i}\,A-B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\,2\sqrt{2}$$

$$\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathrm{i}\,A-B)\,\mathrm{EllipticPi}\Bigg[$$

$$\left.\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}[c+d\,x]}}\sqrt{2}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,A\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(-\mathbb{i}\,A+B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(-\mathbb{i}\,A-B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\,2\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(\frac{A\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{\mathbb{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(-\mathbb{i}\,A+B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(-i A-B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)$$

$$\left.\left.\sqrt{\text{Tan}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}\right)\right)+\left(\left(\frac{2 A}{3 a}-\frac{2\,(-2 A b\,\text{Cos}[c+d x]+3 a B\,\text{Cos}[c+d x])\,\text{Csc}[c+d x]}{3 a^2}-\right.\right.$$

$$\left.\frac{2 A\,\text{Csc}[c+d x]^2}{3 a}\right)$$

$$\left.(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\sqrt{\text{Tan}[c+d x]}\,(A+B\,\text{Tan}[c+d x])\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\sqrt{a+b\,\text{Tan}[c+d x]}\right)$$

- **Problem 457: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\text{Tan}[c+d x]^{7/2}\sqrt{a+b\,\text{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 256 leaves, 10 steps):

$$\frac{(i A-B)\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\,d}-\frac{(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\,d}-$$

$$\frac{2 A\sqrt{a+b\,\text{Tan}[c+d x]}}{5 a d\,\text{Tan}[c+d x]^{5/2}}+\frac{2\,(4 A b-5 a B)\sqrt{a+b\,\text{Tan}[c+d x]}}{15 a^2 d\,\text{Tan}[c+d x]^{3/2}}+\frac{2\left(15 a^2 A-8 A b^2+10 a b B\right)\sqrt{a+b\,\text{Tan}[c+d x]}}{15 a^3 d\sqrt{\text{Tan}[c+d x]}}$$

Result (type 4, 4549 leaves):

$$-\left(\left(2\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{2+\frac{2 a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(i B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A-iB)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

$$\left(-\frac{B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{B\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)\left(\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\sqrt{2}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\left(\sqrt{2}\, a \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\, \left(i\, B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(A + i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.\left.(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right) \Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\,\sqrt{\text{Tan}[c+d x]}\right) +$$

$$\left(a\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(i\, B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(A + i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.\left.(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{2}\,\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{2}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$3\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,B\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}}\,\sqrt{2}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,B\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \left(\mathbb{i}\,B\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-\mathbb{i}\,B)\,\text{EllipticPi}\Bigg[$$

$$\left.\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,\sqrt{2}\ \text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\text{i}\,B\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\text{i}\,B)\;\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-\text{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\;2\,\sqrt{2}\;\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{2+\frac{2\,a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;B\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\text{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;(A+\text{i}\,B)\;\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\text{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-iB)\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}\right)\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}\right)\sqrt{\text{Tan}[c+dx]}\,\sqrt{a+b\,\text{Tan}[c+dx]}\right)\right)+$$

$$\left(\left(\frac{2(-4Ab+5aB)}{15a^2}+\frac{4\left(9a^2A\,\text{Cos}[c+dx]-4Ab^2\,\text{Cos}[c+dx]+5abB\,\text{Cos}[c+dx]\right)\text{Csc}[c+dx]}{15a^3}-\right.\right.$$

$$\left.\frac{2(-4Ab+5aB)\,\text{Csc}[c+dx]^2}{15a^2}-\frac{2A\,\text{Cot}[c+dx]\,\text{Csc}[c+dx]^2}{5a}\right)$$

$$\left.(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])\sqrt{\text{Tan}[c+dx]}\,(A+B\,\text{Tan}[c+dx])\right)\Big/$$

$$\left(d\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\sqrt{a+b\,\text{Tan}[c+dx]}\right)$$

- **Problem 458: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[c+dx]^{3/2}\,(A+B\,\text{Tan}[c+dx])}{(a+b\,\text{Tan}[c+dx])^{3/2}}\,dx$$

Optimal (type 3, 219 leaves, 13 steps):

$$-\frac{(iA-B)\,\text{ArcTan}\left[\frac{\sqrt{ia-b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]}{(ia-b)^{3/2}\,d}+\frac{2B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]}{b^{3/2}\,d}-\frac{(iA+B)\,\text{ArcTanh}\left[\frac{\sqrt{ia+b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]}{(ia+b)^{3/2}\,d}+\frac{2a\,(Ab-aB)\sqrt{\text{Tan}[c+dx]}}{b\left(a^2+b^2\right)d\sqrt{a+b\,\text{Tan}[c+dx]}}$$

Result (type 4, 76 131 leaves): Display of huge result suppressed!

- **Problem 459: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\operatorname{Tan}[c+d\,x]}\,\left(A+B\operatorname{Tan}[c+d\,x]\right)}{\left(a+b\operatorname{Tan}[c+d\,x]\right)^{3/2}}\,dx$$

Optimal (type 3, 170 leaves, 8 steps):

$$-\frac{(A+i B)\operatorname{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b\operatorname{Tan}[c+d x]}}\right]}{(i a-b)^{3/2} d}+\frac{(A-i B)\operatorname{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b\operatorname{Tan}[c+d x]}}\right]}{(i a+b)^{3/2} d}-\frac{2\,(A b-a B)\sqrt{\operatorname{Tan}[c+d x]}}{\left(a^2+b^2\right) d\sqrt{a+b\operatorname{Tan}[c+d x]}}$$

Result (type 4, 5177 leaves):

$$-\left(\left(4\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,(A b-a B)\operatorname{EllipticF}\left[i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)(A-i B)$$

$$\left.\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\operatorname{Sec}[c+d x]\,(a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x])$$

$$\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\left(\frac{A b\operatorname{Csc}[c+d x]\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{2(a-i b)(a+i b)\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}-\frac{a B\operatorname{Csc}[c+d x]\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{2(a-i b)(a+i b)\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}+\right.$$

$$\frac{A b\operatorname{Cos}[2(c+d x)]\operatorname{Csc}[c+d x]\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{2(a-i b)(a+i b)\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}-\frac{a B\operatorname{Cos}[2(c+d x)]\operatorname{Csc}[c+d x]\sqrt{\operatorname{Sec}[c+d x]}\,\sqrt{\operatorname{Tan}[c+d x]}}{2(a-i b)(a+i b)\sqrt{a\operatorname{Cos}[c+d x]+b\operatorname{Sin}[c+d x]}}+$$

$$\frac{a\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\Bigg)$$

$$(A+B\,\mathrm{Tan}[c+d\,x])\Bigg)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

$$\Bigg(\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\Bigg(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\Bigg(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-i\,(A\,b-a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\left.\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)\,(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(-i\,(A b-a B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)\,(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)\,(A-i B)\,\text{EllipticPi}\Bigg[$$

$$\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A\,b-a\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)$$

$$\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Bigg)\Bigg)+\Big(\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(\frac{2\,(-A\,b+a\,B)}{a\,(a-i\,b)\,(a+i\,b)}-\frac{2\left(-A\,b^2\,\mathrm{Sin}[c+d\,x]+a\,b\,B\,\mathrm{Sin}[c+d\,x]\right)}{a\,(a-i\,b)\,(a+i\,b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$

$$\sqrt{\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\Bigg)\Big/\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)$$

- **Problem 460: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 175 leaves, 8 steps):

$$\frac{(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}+\frac{(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}+\frac{2\,b\,(A\,b-a\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{a\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5177 leaves):

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(\frac{a\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{a\,A\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{b\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\left.\frac{A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-i\,b)\,(a+i\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.(A+B\,\mathrm{Tan}[c+d\,x])\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right.$$

$$\left(-\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\mathrm{Tan}[c+d\,x]^{3/2}}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\left(i\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\;\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(\mathrm{i}\, a \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left((a A+b B) \operatorname{EllipticF}\left[\mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\, b)(A+\mathrm{i}\, B) \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathrm{i}\, b)(A-\mathrm{i}\, B) \operatorname{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left(\left(a^2+b^2\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}\right.$$

$$\left.\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\operatorname{Tan}[c+d x]}\right)+\frac{1}{\left(a^2+b^2\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}$$

$$3\, \mathrm{i} \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left((a A+b B) \operatorname{EllipticF}\left[\mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\, b)(A+\mathrm{i}\, B) \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\left(2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left((a\,A+b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \left((a\,A+b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left((a A+b B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,A+b\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\;(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)+\left(\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\right.$$

$$\left(-\frac{2\,b\,(-A\,b+a\,B)}{a^2\,(a-i\,b)\,(a+i\,b)}+\frac{2\left(-A\,b^3\,\mathrm{Sin}[c+d\,x]+a\,b^2\,B\,\mathrm{Sin}[c+d\,x]\right)}{a^2\,(a-i\,b)\,(a+i\,b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$

$$\sqrt{\mathrm{Tan}[c+d\,x]}$$

$$\left.(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\right.$$

$$(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])$$

$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)$$

- **Problem 461: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Tan}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 216 leaves, 9 steps):

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a-b)^{3/2}\,d}-\frac{(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a+b)^{3/2}\,d}-\frac{2\,A}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}-\frac{2\,b\,\left(a^2\,A+2\,A\,b^2-a\,b\,B\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{a^2\,\left(a^2+b^2\right)\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5187 leaves):

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-\mathrm{i}\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,\left(-\frac{A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{A\,b\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\left.\frac{a\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.(A+B\,Tan[c+d\,x])\right)\Big/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (A\,Cos[c+d\,x]+B\,Sin[c+d\,x])\right)$$

$$\left(-\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,Cos[c+d\,x]+b\,Sin[c+d\,x]}\ Tan[c+d\,x]^{3/2}}\ 2\,Cos\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,Cot\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,Cot\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i\ (A\,b-a\,B)\ EllipticF\left[i\,ArcSinh\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{Tan\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\ (A+i\,B)\ EllipticPi\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,ArcSinh\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{Tan\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+i\,b)\ (A-i\,B)\ EllipticPi\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,ArcSinh\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{Tan\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)Sec[c+d\,x]^{5/2}\ Tan\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,Cot\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-i\ (A\,b-a\,B)\ EllipticF\left[i\,ArcSinh\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{Tan\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a - i\, b)\, (A + i\, B)\, \text{EllipticPi}\Big[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a},\ i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}}\Big],\ \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\Big] +$$

$$(a + i\, b)\, (A - i\, B)\, \text{EllipticPi}\Big[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a},\ i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}}\Big],\ \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\Big]\Bigg)\, \sqrt{\text{Sec}[c + d\, x]}\Bigg) \Big/$$

$$\Bigg(\left(a^2 + b^2\right) \left(b - \sqrt{a^2 + b^2}\right) \sqrt{\frac{a}{b + \sqrt{a^2 + b^2}}}\, \sqrt{1 + \frac{a\, \text{Cot}\left[\frac{1}{2}\, (c + d\, x)\right]}{b - \sqrt{a^2 + b^2}}}\, \sqrt{a\, \text{Cos}[c + d\, x] + b\, \text{Sin}[c + d\, x]}\, \sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}\, \sqrt{\text{Tan}[c + d\, x]}\Bigg) -$$

$$\Bigg(a \sqrt{1 + \frac{a\, \text{Cot}\left[\frac{1}{2}\, (c + d\, x)\right]}{b - \sqrt{a^2 + b^2}}}\, \Bigg(-i\, (A\, b - a\, B)\, \text{EllipticF}\Big[i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}}\Big],\ \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\Big] -$$

$$(a - i\, b)\, (A + i\, B)\, \text{EllipticPi}\Big[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a},\ i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}}\Big],\ \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\Big] +$$

$$(a + i\, b)\, (A - i\, B)\, \text{EllipticPi}\Big[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a},\ i\, \text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\, (c + d\, x)\right]}}\Big],\ \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\Big]\Bigg)\, \sqrt{\text{Sec}[c + d\, x]}\Bigg) \Big/$$

$$\Bigg(\left(a^2 + b^2\right) \sqrt{\frac{a}{b + \sqrt{a^2 + b^2}}}\, \left(b + \sqrt{a^2 + b^2}\right) \sqrt{\frac{b + \sqrt{a^2 + b^2} + a\, \text{Cot}\left[\frac{1}{2}\, (c + d\, x)\right]}{b + \sqrt{a^2 + b^2}}}\, \sqrt{a\, \text{Cos}[c + d\, x] + b\, \text{Sin}[c + d\, x]}$$

$$\left.\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}$$

$$3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(-\mathbb{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\,-$$

$$\left(2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(-\mathbb{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}$$

$$\left.(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\sqrt{\text{Tan}[c+d x]}\right)-$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(-i(A b-a B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(-i\,(A\,b-a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A\,b-a\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)+\Big(\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(\frac{2\,b^2\,(-A\,b+a\,B)}{a^3\,(a^2+b^2)}-\frac{2\,A\,\mathrm{Cot}[c+d\,x]}{a^2}-\frac{2\,(-A\,b^4\,\mathrm{Sin}[c+d\,x]+a\,b^3\,B\,\mathrm{Sin}[c+d\,x])}{a^3\,(a-i\,b)\,(a+i\,b)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$
$$\sqrt{\mathrm{Tan}[c+d\,x]}$$
$$\left.(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\Big(d$$
$$(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])$$
$$(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\Big)$$

- **Problem 462: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Tan}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 276 leaves, 10 steps):

$$-\frac{(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{3/2}\,d}-\frac{(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{3/2}\,d}-\frac{2\,A}{3\,a\,d\,\mathrm{Tan}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+$$
$$\frac{2\,(4\,A\,b-3\,a\,B)}{3\,a^2\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+\frac{2\,b\,(5\,a^2\,A\,b+8\,A\,b^3-3\,a^3\,B-6\,a\,b^2\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^3\,(a^2+b^2)\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5247 leaves):

$$-\left(\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(-\frac{a\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,A\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\left.\frac{A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\left.(A+B\,\mathrm{Tan}[c+d\,x])\right)\right/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

$$\left(\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\left(i\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left((a^2+b^2)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)(A-i\,B)$$

$$\left.\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}+\left(2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\Big[$$

$$\left.\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left((a\,A+b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}\ 4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Sec}[c+d x]}\ \left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a A+b B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)$$

$$\sqrt{\text{Tan}[c+d x]}\ (a+b\,\text{Tan}[c+d x])^{3/2}\Bigg)\Bigg)+\Big(\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$

$$\left(\frac{2\left(a^4 A+a^2 A b^2+3 A b^4-3 a b^3 B\right)}{3 a^4 (a-i b) (a+i b)}-\frac{2 (-5 A b \operatorname{Cos}[c+d x]+3 a B \operatorname{Cos}[c+d x]) \operatorname{Csc}[c+d x]}{3 a^3}-\frac{2 A \operatorname{Csc}[c+d x]^2}{3 a^2}+\frac{2\left(-A b^5 \operatorname{Sin}[c+d x]+a b^4 B \operatorname{Sin}[c+d x]\right)}{a^4 (a-i b) (a+i b) (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}\right)$$

$$\sqrt{\operatorname{Tan}[c+d x]}\,(A+B \operatorname{Tan}[c+d x])\Bigg)\Bigg/\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\,(a+b \operatorname{Tan}[c+d x])^{3/2}\right)$$

Problem 463: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Tan}[c+d x]^{5/2} (A+B \operatorname{Tan}[c+d x])}{(a+b \operatorname{Tan}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 282 leaves, 14 steps):

$$\frac{(i A-B) \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{(i a-b)^{5/2} d}+\frac{2 B \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{b^{5/2} d}-\frac{(i A+B) \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{(i a+b)^{5/2} d}+\frac{2 a (A b-a B) \operatorname{Tan}[c+d x]^{3/2}}{3 b \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^{3/2}}+\frac{2 a \left(2 A b^3-a \left(a^2+3 b^2\right) B\right) \sqrt{\operatorname{Tan}[c+d x]}}{b^2 \left(a^2+b^2\right)^2 d \sqrt{a+b \operatorname{Tan}[c+d x]}}$$

Result (type 4, 113 022 leaves) : Display of huge result suppressed !

Problem 464: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Tan}[c+d x]^{3/2} (A+B \operatorname{Tan}[c+d x])}{(a+b \operatorname{Tan}[c+d x])^{5/2}} \, dx$$

Optimal (type 3, 244 leaves, 9 steps):

$$\frac{(A+i B) \operatorname{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{(i a-b)^{5/2} d}+\frac{(A-i B) \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{(i a+b)^{5/2} d}+\frac{2 a (A b-a B) \sqrt{\operatorname{Tan}[c+d x]}}{3 b \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^{3/2}}+\frac{2 \left(2 a^2 A b-4 A b^3+a^3 B+7 a b^2 B\right) \sqrt{\operatorname{Tan}[c+d x]}}{3 b \left(a^2+b^2\right)^2 d \sqrt{a+b \operatorname{Tan}[c+d x]}}$$

Result (type 4, 5635 leaves) :

$$-\left(\left(4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2 A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^2(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(-\frac{a^2 A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,b\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2 A\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{A\,b^2\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,B\,\text{Cos}[2(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\frac{a\,A\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2 B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\left.\left.\frac{b^2 B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2(a-i\,b)^2(a+i\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)(A+B\,\text{Tan}[c+d\,x])\right)\right/$$

$$\Bigg(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\, (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\Bigg) \Bigg/ \Bigg(\Bigg(2\, \mathbb{i} \operatorname{Cos}\Big[\frac{1}{2}\,(c+d x)\Big]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\big[\frac{1}{2}\,(c+d x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\big[\frac{1}{2}\,(c+d x)\big]}{b-\sqrt{a^2+b^2}}}\;\Bigg(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\Bigg[\mathbb{i} \operatorname{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\big[\frac{1}{2}\,(c+d x)\big]}}\Bigg], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\Bigg[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\big[\frac{1}{2}\,(c+d x)\big]}}\Bigg], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+\mathbb{i} b)^2 (A-\mathbb{i} B) \operatorname{EllipticPi}\Bigg[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\big[\frac{1}{2}\,(c+d x)\big]}}\Bigg], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)$$

$$\operatorname{Sec}[c+d x]^{5/2} \operatorname{Tan}\Big[\frac{1}{2}\,(c+d x)\Big]^{3/2}\Bigg) \Bigg/ \Bigg(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}\; \operatorname{Tan}[c+d x]^{3/2}\Bigg)+$$

$$\Bigg(\mathbb{i}\, a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\big[\frac{1}{2}\,(c+d x)\big]}{b+\sqrt{a^2+b^2}}}\;\Bigg(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\Bigg[\mathbb{i} \operatorname{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\big[\frac{1}{2}\,(c+d x)\big]}}\Bigg], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\Bigg[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\big[\frac{1}{2}\,(c+d x)\big]}}\Bigg], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Big/ \Bigg(\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\Bigg) +$$

$$\Bigg(i a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \Bigg(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Big/$$

$$\Bigg(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}$$

$$\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]} \sqrt{\text{Tan}[c+d x]}\Bigg) - \Bigg(3 i \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\Bigg(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a - i b)^2 (A + i B) \,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a + i b)^2 (A - i B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\Bigg) \Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \,\text{Cos}[c+d x] + b \,\text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\right) + \Bigg(2 i \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2} + a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \Bigg(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a - i b)^2 (A + i B) \,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a + i b)^2 (A - i B) \,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}$$

$$\left.\left(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x]\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\left(a^2 A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\left.\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a - i b)^2 (A + i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a + i b)^2 (A - i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2}$$

$$\left.\text{Sin}[c+d x] \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \,\text{Cos}[c+d x] + b \,\text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\left(4 i \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2} + a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Sec}[c+d x]}\right.$$

$$\left(-\frac{i \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(a^2 A - A b^2 + 2 a b B\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}} +\right.$$

$$\frac{\text{i}\,(a-\text{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\text{i}\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\text{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{\text{i}\,(a+\text{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\text{i}\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\text{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left.\left.\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)\right)+$$

$$\left(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{2\left(3\,a^2\,A-4\,A\,b^2+7\,a\,b\,B\right)}{3\,a\,(a-\text{i}\,b)^2\,(a+\text{i}\,b)^2}-\right.\right.$$

$$\frac{2\,a\,b\,(-A\,b+a\,B)}{3\,(a-\text{i}\,b)^2\,(a+\text{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+$$

$$\left.\frac{2\left(-4\,a^2\,A\,b\,\text{Sin}[c+d\,x]+4\,A\,b^3\,\text{Sin}[c+d\,x]+a^3\,B\,\text{Sin}[c+d\,x]-7\,a\,b^2\,B\,\text{Sin}[c+d\,x]\right)}{3\,a\,(a-\text{i}\,b)^2\,(a+\text{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)$$

$$\left.\sqrt{\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 465: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 244 leaves, 9 steps):

$$-\frac{(i A-B)\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a-b)^{5/2}\,d}+\frac{(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]}{(i a+b)^{5/2}\,d}-$$

$$\frac{2\,(A b-a B)\,\sqrt{\text{Tan}[c+d x]}}{3\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d x])^{3/2}}-\frac{2\,\left(5 a^2 A b-A b^3-2 a^3 B+4 a b^2 B\right)\,\sqrt{\text{Tan}[c+d x]}}{3\,a\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\text{Tan}[c+d x]}}$$

Result (type 4, 5639 leaves) :

$$-\left(\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(i\,\left(-2 a A b+a^2 B-b^2 B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2\,(A+i B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)^2\,(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$

$$\text{Tan}\left[\frac{1}{2}\,(c+d x)\right]^{3/2}\,\left(\frac{a A b\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{a^2 B\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\right.$$

$$\frac{b^2 B\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{a A b\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-$$

$$\frac{a^2 B\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{b^2 B\,\text{Cos}[2\,(c+d x)]\,\text{Csc}[c+d x]\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{2\,(a-i b)^2\,(a+i b)^2\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+$$

$$\frac{a^2\,A\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,b^2\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\left.\frac{a\,b\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)\left(\left(2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\,\text{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(i\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/\left((a^2+b^2)^2\right.$$

$$\left.\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(i\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right.$$

$$\left.\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)-\left(3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2(A-\mathrm{i}\,B)$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}\right)+\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.\text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\left(2 \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(i \left(-2 a A b+a^2 B-b^2 B\right) \text{EllipticF}\left[i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a-i b)^2 (A+i B) \,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.(a+i b)^2 (A-i B) \,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2}$$

$$\left.\text{Sin}[c+d x] \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\left(4 \,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Sec}[c+d x]}\right.$$

$$\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{\mathrm{i}\,(a+\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/$$

$$\left.\left(\left(a^2+b^2\right)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\Bigg)\Bigg)+$$

$$\left(\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,\left(\frac{2\,\left(-6\,a^2\,A\,b+A\,b^3+3\,a^3\,B-4\,a\,b^2\,B\right)}{3\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\right.\right.$$

$$\frac{2\,b^2\,(-A\,b+a\,B)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-$$

$$\left.\frac{2\,\left(-7\,a^2\,A\,b^2\,\mathrm{Sin}[c+d\,x]+A\,b^4\,\mathrm{Sin}[c+d\,x]+4\,a^3\,b\,B\,\mathrm{Sin}[c+d\,x]-4\,a\,b^3\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\Big(d$$

$$(A\,\mathrm{Cos}[c+d\,x]+$$
$$\left.B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

Problem 466: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Tan}[c+d\,x]}\,\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 247 leaves, 9 steps):

$$-\frac{(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a-b)^{5/2}\,d}-\frac{(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(\mathrm{i}\,a+b)^{5/2}\,d}+$$
$$\frac{2\,b\,(A\,b-a\,B)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a\,\left(a^2+b^2\right)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,b\,\left(8\,a^2\,A\,b+2\,A\,b^3-5\,a^3\,B+a\,b^2\,B\right)\,\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5654 leaves):

$$\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(\frac{a^2\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{A\,b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a\,b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a^2 A \cos[2 (c+d x)] \csc[c+d x] \sqrt{\sec[c+d x]} \sqrt{\tan[c+d x]}}{2 (a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}-\frac{A b^2 \cos[2 (c+d x)] \csc[c+d x] \sqrt{\sec[c+d x]} \sqrt{\tan[c+d x]}}{2 (a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}+$$

$$\frac{a b B \cos[2 (c+d x)] \csc[c+d x] \sqrt{\sec[c+d x]} \sqrt{\tan[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}-\frac{a A b \csc[c+d x] \sqrt{\sec[c+d x]} \sin[2 (c+d x)] \sqrt{\tan[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}+$$

$$\left.\frac{a^2 B \csc[c+d x] \sqrt{\sec[c+d x]} \sin[2 (c+d x)] \sqrt{\tan[c+d x]}}{2 (a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}-\frac{b^2 B \csc[c+d x] \sqrt{\sec[c+d x]} \sin[2 (c+d x)] \sqrt{\tan[c+d x]}}{2 (a-i b)^2 (a+i b)^2 \sqrt{a \cos[c+d x]+b \sin[c+d x]}}\right)$$

$$\left.(A+B \tan[c+d x])\right) \Bigg/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\, (A \cos[c+d x]+B \sin[c+d x])\right)$$

$$\left(-\left(\left(2\, i \cos\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \cot\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \cot\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left((a^2 A-A b^2+2 a b B) \text{EllipticF}\left[i \text{ArcSinh}\left[\right.\right.\right.\right.\right.\right.$$

$$\left.\left.\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\tan\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\tan\left[\frac{1}{2} (c+d x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\tan\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left.\sec[c+d x]^{5/2} \tan\left[\frac{1}{2} (c+d x)\right]^{3/2}\right) \Bigg/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \cos[c+d x]+b \sin[c+d x]} \tan[c+d x]^{3/2}\right)\right)-$$

$$\left(i\, a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(\left(a^2 A - A b^2 + 2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(a-i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.\left.(a+i b)^2 (A-i B) \operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left(\left(a^2+b^2\right)^2 \left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]} \sqrt{\operatorname{Tan}[c+d x]}\right) -$$

$$\left(i\, a \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^2 A - A b^2 + 2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(a-i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\left.\left.\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}\;3\,\text{i}\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\text{i}\,b)^2\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\text{i}\,b)^2\,(A-\text{i}\,B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\;-\left(2\,\text{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}$$

$$\left.(b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right) \Big/ \left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^{3/2} \sqrt{\text{Tan}[c+d x]}\right) -$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}[c+d x]}} 4 i \text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]} \text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}} 2 i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \left(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)^2 (A-i B)$$

$$\left.\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \operatorname{Sec}[c+d x]^{3/2} \operatorname{Sin}[c+d x] \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}} 4 i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Sec}[c+d x]} \left(-\frac{i \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a^2 A-A b^2+2 a b B\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i (a-i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (A+i B) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)+\left(\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\right.$$

$$\left(-\frac{2\,b\left(-9\,a^2\,A\,b-2\,A\,b^3+6\,a^3\,B-a\,b^2\,B\right)}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,b^3\,(-A\,b+a\,B)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$

$$\left.\frac{2\left(-10\,a^2\,A\,b^3\,\mathrm{Sin}[c+d\,x]-2\,A\,b^5\,\mathrm{Sin}[c+d\,x]+7\,a^3\,b^2\,B\,\mathrm{Sin}[c+d\,x]-a\,b^4\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)$$

$$\left.\sqrt{\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right.$$

$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 467: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Tan}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 301 leaves, 10 steps):

$$\frac{(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}-\frac{(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}-\frac{2\,A}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-$$

$$\frac{2\,b\left(3\,a^2\,A+4\,A\,b^2-a\,b\,B\right)\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^2\left(a^2+b^2\right)d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\left(3\,a^4\,A+17\,a^2\,A\,b^2+8\,A\,b^4-8\,a^3\,b\,B-2\,a\,b^3\,B\right)\sqrt{\mathrm{Tan}[c+d\,x]}}{3\,a^3\left(a^2+b^2\right)^2 d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5666 leaves):

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\left(-\frac{a\,A\,b\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\frac{a^2\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^2\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{a\,A\,b\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\frac{b^2\,B\,\text{Cos}[2\,(c+d\,x)]\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2\,A\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\frac{A\,b^2\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,b\,B\,\text{Csc}[c+d\,x]\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\sqrt{\text{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\left.(A+B\,\text{Tan}[c+d\,x])\right)\right/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\left(\left(2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\;+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\right.\right.\right.\right.\right.\right.$$

$$\left.\left.\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left.\left.\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\text{Tan}[c+d\,x]^{3/2}\right)\right)-$$

$$\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}\;+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(\mathbb{i}\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left.\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-\left(2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathbb{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{(a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{(a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\left(\mathbb{i}\left(-2 a A b+a^2 B-b^2 B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i} b)^2(A+\mathbb{i} B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i} b)^2(A-\mathbb{i} B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Sec}[c+d x]}\right.$$

$$\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(-2 a A b+a^2 B-b^2 B\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}(a-\mathbb{i} b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A+\mathbb{i} B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\Bigg)\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Bigg/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)\Bigg)\,\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\Bigg)+$$

$$\Bigg(\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,\Bigg(\frac{2\,b^2\left(-12\,a^2\,A\,b-5\,A\,b^3+9\,a^3\,B+2\,a\,b^2\,B\right)}{3\,a^4\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,A\,\text{Cot}[c+d\,x]}{a^3}+$$

$$\frac{2\,b^4\,(-A\,b+a\,B)}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}-$$

$$\frac{2\left(-13\,a^2\,A\,b^4\,\text{Sin}[c+d\,x]-5\,A\,b^6\,\text{Sin}[c+d\,x]+10\,a^3\,b^3\,B\,\text{Sin}[c+d\,x]+2\,a\,b^5\,B\,\text{Sin}[c+d\,x]\right)}{3\,a^4\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\Bigg)$$

$$\sqrt{\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Big/\Big(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\Big)$$

- **Problem 468: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Tan}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 359 leaves, 11 steps):

$$\frac{(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a-b)^{5/2}\,d}+\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{(i\,a+b)^{5/2}\,d}-$$

$$\frac{2\,A}{3\,a\,d\,\text{Tan}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,(2\,A\,b-a\,B)}{a^2\,d\,\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+$$

$$\frac{2\,b\left(7\,a^2\,A\,b+8\,A\,b^3-3\,a^3\,B-4\,a\,b^2\,B\right)\sqrt{\text{Tan}[c+d\,x]}}{3\,a^3\left(a^2+b^2\right)d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,b\left(8\,a^4\,A\,b+30\,a^2\,A\,b^3+16\,A\,b^5-3\,a^5\,B-17\,a^3\,b^2\,B-8\,a\,b^4\,B\right)\sqrt{\text{Tan}[c+d\,x]}}{3\,a^4\left(a^2+b^2\right)^2 d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 5723 leaves) :

$$-\left(\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\left(-\frac{a^2\,A\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{A\,b^2\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{a\,b\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\,A\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{A\,b^2\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a\,b\,B\,\mathrm{Cos}[2\,(c+d\,x)]\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{a\,A\,b\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\,B\,\mathrm{Csc}[c+d\,x]\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[2\,(c+d\,x)]\,\sqrt{\mathrm{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\left.\left.\frac{b^2\,B\,\text{Csc}[c+d\,x]\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[2\,(c+d\,x)]\,\sqrt{\text{Tan}[c+d\,x]}}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)\left(\left(2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\left((a^2\,A-A\,b^2+2\,a\,b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\text{Sec}[c+d\,x]^{5/2}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\text{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(\mathrm{i}\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left((a^2\,A-A\,b^2+2\,a\,b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Big/\Bigg(\left(a^2+b^2\right)^2$$

$$\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]}\,\sqrt{\mathrm{Tan}[c+d\,x]}\Bigg)+$$

$$\Bigg(\mathrm{i}\,a\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\Bigg(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\mathrm{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\Bigg(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}$$

$$\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\text{Tan}[c+d\,x]}\Bigg) - \Bigg(3\,i\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\Bigg(\left(a^2 A - A\,b^2 + 2\,a\,b\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i\,b)^2\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\Bigg) \Big/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}\right) + \Bigg(2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \Bigg(\left(a^2 A - A\,b^2 + 2\,a\,b\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(4\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\left.\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\,+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\text{Sec}[c+d\,x]^{3/2}$$

$$\left.\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Big/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\left(4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\,+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Sec}[c+d\,x]}\right.$$

$$\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a^2 A - A b^2 + 2 a b B\right) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i (a-i b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A+i B) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\left.\frac{i (a+i b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A-i B) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1+i \text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\Big/$$

$$\left(\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\sqrt{\text{Tan}[c+d x]}\right)\right)\sqrt{\text{Tan}[c+d x]}(a+b \text{Tan}[c+d x])^{5/2}\Bigg)\Bigg)+$$

$$\left(\text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\left(\frac{2\left(a^6 A+2 a^4 A b^2+16 a^2 A b^4+8 A b^6-12 a^3 b^3 B-5 a b^5 B\right)}{3 a^5 (a-i b)^2 (a+i b)^2}-\right.\right.$$

$$\frac{2 (-8 A b \text{Cos}[c+d x]+3 a B \text{Cos}[c+d x]) \text{Csc}[c+d x]}{3 a^4}-$$

$$\frac{2 A \text{Csc}[c+d x]^2}{3 a^3}-$$

$$\frac{2 b^5 (-A b+a B)}{3 a^3 (a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2}+$$

$$\left.\frac{2\left(-16 a^2 A b^5 \text{Sin}[c+d x]-8 A b^7 \text{Sin}[c+d x]+13 a^3 b^4 B \text{Sin}[c+d x]+5 a b^6 B \text{Sin}[c+d x]\right)}{3 a^5 (a-i b)^2 (a+i b)^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}\right)$$

$$\sqrt{\mathrm{Tan}[c+d\,x]}\;(A+B\,\mathrm{Tan}[c+d\,x])\Bigg)\Bigg/\Bigg(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\Bigg)$$

- **Problem 469: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^{3/2}\,(a\,B+b\,B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 155 leaves, 13 steps):

$$-\frac{B\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\,d}+\frac{2\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{b}\,d}-\frac{B\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\,d}$$

Result (type 4, 6091 leaves):

$$\Bigg(4\sqrt{a^2+b^2}\;B$$

$$\left(\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \text{Sec}[c+d x]} \sqrt{\frac{a \,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x])}{a^2+b^2}} \sqrt{\frac{a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \,\text{Tan}[c+d x]\right) \Big/$$

$$\left(d \sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2} \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]} \sqrt{a+b \,\text{Tan}[c+d x]}\right.$$

$$\left(-\frac{1}{\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2} \sqrt{a \,\text{Cos}[c+d x]+b \,\text{Sin}[c+d x]} \,\text{Tan}[c+d x]^{3/2}} 2 \sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d x]^2 \sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \text{Sec}[c+d x]} \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}} \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} + \left(a\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}} + \frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)} +\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)} - \frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\sqrt{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2} \sqrt{\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \text{Sec}[c+d x]} \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\right) \Big/$$

$$\left(\left(b+\sqrt{a^2+b^2}\right) \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]} \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Tan}[c+d x]}\right) - \left(2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\frac{1}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}\,2\sqrt{a^2+b^2}\ \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\left(2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\right.$$

$$\left.\left.\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)\right)\Big/$$

$$\left(\sqrt{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\frac{1}{\sqrt{\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

$$4\sqrt{a^2+b^2}\,\sqrt{\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\mathrm{Sec}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(-\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)+\left(2\sqrt{a^2+b^2}\right.$$

$$\left(\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}+\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}+\right.$$

$$\left.\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\frac{a \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{a^2+b^2}} \sqrt{\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(-\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \operatorname{Sec}[c+d x] \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]\right)\Bigg) \Big/$$

$$\left(\sqrt{\operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2} \sqrt{\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}\right)\Bigg)\Bigg)$$

- **Problem 470: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{\operatorname{Tan}[c+d x]}\ (a B+b B \operatorname{Tan}[c+d x])}{(a+b \operatorname{Tan}[c+d x])^{3/2}}\, dx$$

Optimal (type 3, 117 leaves, 8 steps):

$$\frac{i B \operatorname{ArcTan}\left[\frac{\sqrt{i a-b}\ \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{\sqrt{i a-b}\ d}-\frac{i B \operatorname{ArcTanh}\left[\frac{\sqrt{i a+b}\ \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]}{\sqrt{i a+b}\ d}$$

Result (type 4, 2767 leaves):

$$\left(2 B \left(\operatorname{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\sqrt{-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\operatorname{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\sqrt{-\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\ \operatorname{Sin}[c+d x] \sqrt{1+\frac{a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg) \Big/$$

$$\left(d\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right.$$

$$\left(-\left(\left(\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{5/2}\,\mathrm{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\mathrm{Tan}[c+d\,x]^{3/2}\right)+$$

$$\left(a\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]\right)\Bigg/$$

$$\left(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/\left((a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(2\Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{\text{Sec}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\Bigg(\Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]^2\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\sqrt{\text{Tan}[c+d\,x]}\right)-$$

$$\Bigg(\Bigg(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]$$

$$\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\left(-\frac{a^2\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)^2}-\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{2\left(b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)}\right)\right)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\left(-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)^{3/2}\sqrt{\text{Tan}[c+d\,x]}\right)+$$

$$\left(2\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\left(\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1-i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\right.\right.\right.$$

$$\left.\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/$$

$$\left.\left.\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\right)\right)\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\sqrt{\text{Tan}[c+d\,x]}\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}$$

- **Problem 471: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a\,B+b\,B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Tan}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 111 leaves, 8 steps):

$$\frac{B\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a-b}\,d}+\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]}{\sqrt{i\,a+b}\,d}$$

Result (type 4, 423 leaves):

$$\left(2\,\mathrm{i}\,\sqrt{2}\,B\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{2+\frac{2\,a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 472: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a\,B+b\,B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Tan}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 150 leaves, 10 steps):

$$-\frac{\mathrm{i}\,B\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{\mathrm{i}\,a-b}\,d}+\frac{\mathrm{i}\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]}{\sqrt{\mathrm{i}\,a+b}\,d}-\frac{2\,B\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{a\,d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 2822 leaves):

$$B\left(\left(2\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\text{Sin}[c+d x]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/\left(d\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right.$$

$$\left(\left(\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.\right.\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{5/2}\,\text{Sin}[c+d x]\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\,\text{Tan}[c+d x]^{3/2}\right)-$$

$$\left(a\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]\Bigg)\Bigg/$$

$$\left(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\sqrt{\text{Tan}[c+d x]}\right)+$$

$$\left(\left(\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.i\,\text{ArcSinh}\left[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])$$

$$\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/\left((a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(2\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)-$$

$$\left(\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.\right.\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]^2\,\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg/$$

$$\left(\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\,\sqrt{\mathrm{Tan}[c+d\,x]}\right)+$$

$$\left(\left(\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]$$

$$\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\left(-\frac{a^2\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)^2}-\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{2\left(b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)}\right)\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}\left(-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)^{3/2}\sqrt{\mathrm{Tan}[c+d x]}\right)-$$

$$\Bigg(2\sqrt{\mathrm{Sec}[c+d x]}\;\mathrm{Sin}[c+d x]\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\;\Bigg(\left(i\,a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\Bigg(4\left(b+\sqrt{a^2+b^2}\right)\left(1-i\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)$$

$$\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)-\left(i\,a\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/$$

$$\Bigg(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\sqrt{\mathrm{Tan}[c+d x]}\right)\Bigg)$$

$$\sqrt{a+b\,\mathrm{Tan}[c+d x]}\left(-\frac{2\,\mathrm{Sec}[c+d x]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])}{a\,d\sqrt{\mathrm{Tan}[c+d x]}\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right)$$

- **Problem 473: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\mathrm{Tan}[c+d x])^{2/3}\,(A+B\,\mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 379 leaves, 12 steps):

$$-\frac{1}{4}(a-\mathrm{i}\,b)^{2/3}(A-\mathrm{i}\,B)\,x-\frac{1}{4}(a+\mathrm{i}\,b)^{2/3}(A+\mathrm{i}\,B)\,x+\frac{\sqrt{3}\,(a-\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A+B)\,\text{ArcTan}\left[\frac{1+\frac{2(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}-$$

$$\frac{\sqrt{3}\,(a+\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A-B)\,\text{ArcTan}\left[\frac{1+\frac{2(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}-\frac{(a+\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A-B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,d}+$$

$$\frac{(a-\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A+B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,d}+\frac{3\,(a-\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A+B)\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,d}-$$

$$\frac{3\,(a+\mathrm{i}\,b)^{2/3}(\mathrm{i}\,A-B)\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,d}+\frac{3\,B\,(a+b\,\text{Tan}[c+d\,x])^{2/3}}{2\,d}$$

Result (type 3, 6768 leaves):

$$\frac{3\,B\,\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{2/3}\,(A+B\,\text{Tan}[c+d\,x])}{2\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+$$

$$\Bigg(\Bigg(2\sqrt{3}\,(a+\mathrm{i}\,b)^{1/3}(\mathrm{i}\,a+b)(A-\mathrm{i}\,B)\,\text{ArcTan}\left[\frac{1+\frac{2(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+2\sqrt{3}\,(a-\mathrm{i}\,b)^{1/3}(-\mathrm{i}\,a+b)(A+\mathrm{i}\,B)\,\text{ArcTan}\left[\frac{1+\frac{2(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+$$

$$2\,\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$2\,a\,(a+\mathrm{i}\,b)^{1/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,\mathrm{i}\,(a+\mathrm{i}\,b)^{1/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-$$

$$2\,\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{1/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a-\mathrm{i}\,b)^{1/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$2\,a\,(a-\mathrm{i}\,b)^{1/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,\mathrm{i}\,(a-\mathrm{i}\,b)^{1/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-$$

$$\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$a\,(a+\mathrm{i}\,b)^{1/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$

$$\mathrm{i}\,(a+\mathrm{i}\,b)^{1/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$

$$\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{1/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$A\,(a-\mathrm{i}\,b)^{1/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$a\,(a-\mathrm{i}\,b)^{1/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$\mathrm{i}\,(a-\mathrm{i}\,b)^{1/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\Bigg)$$

$$\left(\text{Sec}[c+d\,x]^2\right)^{1/3}\Bigg(\frac{a\,A}{\text{Sec}[c+d\,x]^{1/3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{1/3}}-\frac{b\,B}{\text{Sec}[c+d\,x]^{1/3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{1/3}}+$$

$$\frac{A\,b\,\text{Sec}[c+d\,x]^{2/3}\,\text{Sin}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{1/3}}+\frac{a\,B\,\text{Sec}[c+d\,x]^{2/3}\,\text{Sin}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{1/3}}\Bigg)\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{2/3}(A+B\,\text{Tan}[c+d\,x])\Bigg)\Big/$$

$$\left(4\,(a-\mathrm{i}\,b)^{1/3}\,(a+\mathrm{i}\,b)^{1/3}\,d\,\mathrm{Sec}[c+d\,x]^{5/3}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{2/3}\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right.$$

$$\left(-\frac{1}{6\,(a-\mathrm{i}\,b)^{1/3}\,(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/3}}\,b\,\left(2\,\sqrt{3}\,(a+\mathrm{i}\,b)^{1/3}\,(\mathrm{i}\,a+b)\,(A-\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+\right.\right.$$

$$2\,\sqrt{3}\,(a-\mathrm{i}\,b)^{1/3}\,(-\mathrm{i}\,a+b)\,(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+2\,\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$2\,A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a+\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-$$
$$2\,\mathrm{i}\,(a+\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-2\,\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$2\,A\,(a-\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a-\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$2\,\mathrm{i}\,(a-\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+\right.$$
$$\left.(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$a\,(a+\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]+$$
$$\mathrm{i}\,(a+\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]+$$
$$\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$A\,(a-\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$a\,(a-\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$\left.\mathrm{i}\,(a-\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]\right)$$

$$\left(\mathrm{Sec}[c+d\,x]^2\right)^{4/3}\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Sec}[c+d\,x]^2}}\right)^{2/3}+\frac{1}{6\,(a-\mathrm{i}\,b)^{1/3}\,(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}$$

$$\left(2\,\sqrt{3}\,(a+\mathrm{i}\,b)^{1/3}\,(\mathrm{i}\,a+b)\,(A-\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+2\,\sqrt{3}\,(a-\mathrm{i}\,b)^{1/3}\,(-\mathrm{i}\,a+b)\,(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+\right.$$
$$2\,\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$2\,a\,(a+\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-2\,\mathrm{i}\,(a+\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-$$
$$2\,\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a-\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+$$
$$2\,a\,(a-\mathrm{i}\,b)^{1/3}\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]+2\,\mathrm{i}\,(a-\mathrm{i}\,b)^{1/3}\,b\,B\,\mathrm{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right]-$$
$$\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{1/3}\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$
$$A\,(a+\mathrm{i}\,b)^{1/3}\,b\,\mathrm{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\right]-$$

$$a\,(a+i b)^{1/3} B \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]+$$
$$i\,(a+i b)^{1/3} b B \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]+$$
$$i a A\,(a-i b)^{1/3} \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$A\,(a-i b)^{1/3} b \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$a\,(a-i b)^{1/3} B \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$\left.i\,(a-i b)^{1/3} b B \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]\right)$$

$$\left(\operatorname{Sec}[c+d x]^2\right)^{1/3} \operatorname{Tan}[c+d x] \left(\frac{a+b \operatorname{Tan}[c+d x]}{\sqrt{\operatorname{Sec}[c+d x]^2}}\right)^{2/3}+\frac{1}{6\,(a-i b)^{1/3} (a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{2/3} \left(\frac{a+b \operatorname{Tan}[c+d x]}{\sqrt{\operatorname{Sec}[c+d x]^2}}\right)^{1/3}}$$

$$\left(2 \sqrt{3}\,(a+i b)^{1/3} (i a+b) (A-i B) \operatorname{ArcTan}\left[\frac{1+\frac{2 (a+b \operatorname{Tan}[c+d x])^{1/3}}{(a-i b)^{1/3}}}{\sqrt{3}}\right]+2 \sqrt{3}\,(a-i b)^{1/3} (-i a+b) (A+i B) \operatorname{ArcTan}\left[\frac{1+\frac{2 (a+b \operatorname{Tan}[c+d x])^{1/3}}{(a+i b)^{1/3}}}{\sqrt{3}}\right]+\right.$$
$$2 i a A\,(a+i b)^{1/3} \operatorname{Log}\left[(a-i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]+2 A\,(a+i b)^{1/3} b \operatorname{Log}\left[(a-i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]+$$
$$2 a\,(a+i b)^{1/3} B \operatorname{Log}\left[(a-i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]-2 i\,(a+i b)^{1/3} b B \operatorname{Log}\left[(a-i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]-$$
$$2 i a A\,(a-i b)^{1/3} \operatorname{Log}\left[(a+i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]+2 A\,(a-i b)^{1/3} b \operatorname{Log}\left[(a+i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]+$$
$$2 a\,(a-i b)^{1/3} B \operatorname{Log}\left[(a+i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]+2 i\,(a-i b)^{1/3} b B \operatorname{Log}\left[(a+i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right]-$$
$$i a A\,(a+i b)^{1/3} \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$A\,(a+i b)^{1/3} b \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$a\,(a+i b)^{1/3} B \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]+$$
$$i\,(a+i b)^{1/3} b B \operatorname{Log}\left[(a-i b)^{2/3}+(a-i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]+$$
$$i a A\,(a-i b)^{1/3} \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$A\,(a-i b)^{1/3} b \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$a\,(a-i b)^{1/3} B \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]-$$
$$\left.i\,(a-i b)^{1/3} b B \operatorname{Log}\left[(a+i b)^{2/3}+(a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{1/3}+(a+b \operatorname{Tan}[c+d x])^{2/3}\right]\right) \left(\operatorname{Sec}[c+d x]^2\right)^{1/3}$$

$$\left(b \sqrt{\operatorname{Sec}[c+d x]^2}-\frac{\operatorname{Tan}[c+d x] (a+b \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Sec}[c+d x]^2}}\right)+\frac{1}{4\,(a-i b)^{1/3} (a+i b)^{1/3} (a+b \operatorname{Tan}[c+d x])^{2/3}}$$

$$\left(\operatorname{Sec}[c+d x]^2\right)^{1/3} \left(\frac{a+b \operatorname{Tan}[c+d x]}{\sqrt{\operatorname{Sec}[c+d x]^2}}\right)^{2/3} \left(-\frac{2 i a A\,(a+i b)^{1/3} b \operatorname{Sec}[c+d x]^2}{3\,(a+b \operatorname{Tan}[c+d x])^{2/3} \left((a-i b)^{1/3}-(a+b \operatorname{Tan}[c+d x])^{1/3}\right)}-\right.$$

$$
\begin{aligned}
&\frac{2\,A\,(a+\mathbb{i}\,b)^{1/3}\,b^2\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a-\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}-\frac{2\,a\,(a+\mathbb{i}\,b)^{1/3}\,b\,B\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a-\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}+\\
&\frac{2\,\mathbb{i}\,(a+\mathbb{i}\,b)^{1/3}\,b^2\,B\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a-\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}+\frac{2\,\mathbb{i}\,a\,A\,(a-\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a+\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}-\\
&\frac{2\,A\,(a-\mathbb{i}\,b)^{1/3}\,b^2\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a+\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}-\frac{2\,a\,(a-\mathbb{i}\,b)^{1/3}\,b\,B\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a+\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}-\\
&\frac{2\,\mathbb{i}\,(a-\mathbb{i}\,b)^{1/3}\,b^2\,B\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\,\left((a+\mathbb{i}\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}\right)}-\frac{\mathbb{i}\,a\,A\,(a+\mathbb{i}\,b)^{1/3}\left(\frac{(a-\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a-\mathbb{i}\,b)^{2/3}+(a-\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}-\\
&\frac{A\,(a+\mathbb{i}\,b)^{1/3}\,b\left(\frac{(a-\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a-\mathbb{i}\,b)^{2/3}+(a-\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}-\\
&\frac{a\,(a+\mathbb{i}\,b)^{1/3}\,B\left(\frac{(a-\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a-\mathbb{i}\,b)^{2/3}+(a-\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\\
&\frac{\mathbb{i}\,(a+\mathbb{i}\,b)^{1/3}\,b\,B\left(\frac{(a-\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a-\mathbb{i}\,b)^{2/3}+(a-\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\\
&\frac{\mathbb{i}\,a\,A\,(a-\mathbb{i}\,b)^{1/3}\left(\frac{(a+\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a+\mathbb{i}\,b)^{2/3}+(a+\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}-\\
&\frac{A\,(a-\mathbb{i}\,b)^{1/3}\,b\left(\frac{(a+\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a+\mathbb{i}\,b)^{2/3}+(a+\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}-\\
&\frac{a\,(a-\mathbb{i}\,b)^{1/3}\,B\left(\frac{(a+\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a+\mathbb{i}\,b)^{2/3}+(a+\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}-\\
&\frac{\mathbb{i}\,(a-\mathbb{i}\,b)^{1/3}\,b\,B\left(\frac{(a+\mathbb{i}\,b)^{1/3}\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}\right)}{(a+\mathbb{i}\,b)^{2/3}+(a+\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}+(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}}+\\
&\frac{4\,(a+\mathbb{i}\,b)^{1/3}\,b\,(\mathbb{i}\,a+b)\,(A-\mathbb{i}\,B)\,\mathrm{Sec}[c+d\,x]^2}{3\,(a-\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-\mathbb{i}\,b)^{1/3}}\right)^2\right)}+\\
&\left.\left.\left.\frac{4\,(a-\mathbb{i}\,b)^{1/3}\,b\,(-\mathbb{i}\,a+b)\,(A+\mathbb{i}\,B)\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+\mathbb{i}\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+\mathbb{i}\,b)^{1/3}}\right)^2\right)}\right)\right)\right)
\end{aligned}
$$

Problem 474: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[c+d\,x])^{1/3}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 377 leaves, 12 steps):

$$-\frac{1}{4}(a-i\,b)^{1/3}(A-i\,B)\,x-\frac{1}{4}(a+i\,b)^{1/3}(A+i\,B)\,x-\frac{\sqrt{3}\,(a-i\,b)^{1/3}\,(i\,A+B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}+\frac{\sqrt{3}\,(a+i\,b)^{1/3}\,(i\,A-B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]}{2\,d}-\frac{(a+i\,b)^{1/3}\,(i\,A-B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,d}+\frac{(a-i\,b)^{1/3}\,(i\,A+B)\,\text{Log}[\text{Cos}[c+d\,x]]}{4\,d}+\frac{3\,(a-i\,b)^{1/3}\,(i\,A+B)\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,d}-\frac{3\,(a+i\,b)^{1/3}\,(i\,A-B)\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]}{4\,d}+\frac{3\,B\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{d}$$

Result (type 3, 6772 leaves):

$$\begin{aligned}
&\frac{3\,B\,\text{Cos}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])^{1/3}\,(A+B\,\text{Tan}[c+d\,x])}{d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}+\\
&\Bigg(\Bigg(-2\,i\,\sqrt{3}\,(a-i\,b)\,(a+i\,b)^{2/3}\,(A-i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]+2\,i\,\sqrt{3}\,(a-i\,b)^{2/3}\,(a+i\,b)\,(A+i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]+\\
&\quad 2\,i\,a\,A\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&\quad 2\,a\,(a+i\,b)^{2/3}\,B\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,i\,(a+i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\\
&\quad 2\,i\,a\,A\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&\quad 2\,a\,(a-i\,b)^{2/3}\,B\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,i\,(a-i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\\
&\quad i\,a\,A\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\quad A\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\quad a\,(a+i\,b)^{2/3}\,B\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\quad i\,(a+i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\quad i\,a\,A\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\quad A\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\quad a\,(a-i\,b)^{2/3}\,B\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\quad i\,(a-i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\Bigg)
\end{aligned}$$

$$\left(\text{Sec}[c+d\,x]^2\right)^{1/6}\left(\frac{a\,A}{\text{Sec}[c+d\,x]^{2/3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{2/3}}-\frac{b\,B}{\text{Sec}[c+d\,x]^{2/3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{2/3}}+\right.$$

$$\left.\frac{A\,b\,\text{Sec}[c+d\,x]^{1/3}\,\text{Sin}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{2/3}}+\frac{a\,B\,\text{Sec}[c+d\,x]^{1/3}\,\text{Sin}[c+d\,x]}{(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{2/3}}\right)\left(\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{1/3}(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(4\,(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}\,d\,\text{Sec}[c+d\,x]^{4/3}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{1/3}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\frac{1}{12\,(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}\,(a+b\,\text{Tan}[c+d\,x])^{4/3}}\,b\left(-2\,i\,\sqrt{3}\,(a-i\,b)\,(a+i\,b)^{2/3}\,(A-i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]+\right.\right.$$

$$2\,i\,\sqrt{3}\,(a-i\,b)^{2/3}\,(a+i\,b)\,(A+i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]+2\,i\,a\,A\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$2\,A\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a+i\,b)^{2/3}\,B\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-$$

$$2\,i\,(a+i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,i\,a\,A\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$2\,A\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a-i\,b)^{2/3}\,B\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$2\,i\,(a-i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-i\,a\,A\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+\right.$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-A\,(a+i\,b)^{2/3}\,b\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$a\,(a+i\,b)^{2/3}\,B\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$

$$i\,(a+i\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+$$

$$i\,a\,A\,(a-i\,b)^{2/3}\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$A\,(a-i\,b)^{2/3}\,b\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-$$

$$a\,(a-i\,b)^{2/3}\,B\,\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-i\,(a-i\,b)^{2/3}\,b\,B$$

$$\left.\text{Log}\left[(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\right)\left(\text{Sec}[c+d\,x]^2\right)^{7/6}\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{1/3}+$$

$$\frac{1}{12\,(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}\left(-2\,i\,\sqrt{3}\,(a-i\,b)\,(a+i\,b)^{2/3}\,(A-i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}}{\sqrt{3}}\right]+\right.$$

$$2\,i\,\sqrt{3}\,(a-i\,b)^{2/3}\,(a+i\,b)\,(A+i\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}}{\sqrt{3}}\right]+2\,i\,a\,A\,(a+i\,b)^{2/3}\,\text{Log}\left[(a-i\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+$$

$$
\begin{aligned}
&2\,A\,(a+\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a+\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\\
&2\,\mathrm{i}\,(a+\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&2\,A\,(a-\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,a\,(a-\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&2\,\mathrm{i}\,(a-\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{2/3}\,\text{Log}\Big[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+\\
&\quad(a+b\,\text{Tan}[c+d\,x])^{2/3}\Big]-A\,(a+\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&a\,(a+\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\mathrm{i}\,(a+\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&A\,(a-\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&a\,(a-\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\left.\mathrm{i}\,(a-\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\right)\\
&\left(\text{Sec}[c+d\,x]^2\right)^{1/6}\,\text{Tan}[c+d\,x]\,\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{1/3}+\frac{1}{12\,(a-\mathrm{i}\,b)^{2/3}\,(a+\mathrm{i}\,b)^{2/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}\,\left(\frac{a+b\,\text{Tan}[c+d\,x]}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)^{2/3}}\\
&\left(-2\,\mathrm{i}\,\sqrt{3}\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)^{2/3}\,(A-\mathrm{i}\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a-\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+2\,\mathrm{i}\,\sqrt{3}\,(a-\mathrm{i}\,b)^{2/3}\,(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{ArcTan}\left[\frac{1+\frac{2\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}{(a+\mathrm{i}\,b)^{1/3}}}{\sqrt{3}}\right]+\right.\\
&2\,\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a+\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&2\,a\,(a+\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-2\,\mathrm{i}\,(a+\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\\
&2\,\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,A\,(a-\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+\\
&2\,a\,(a-\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]+2\,\mathrm{i}\,(a-\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{1/3}-(a+b\,\text{Tan}[c+d\,x])^{1/3}\right]-\\
&\mathrm{i}\,a\,A\,(a+\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&A\,(a+\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&a\,(a+\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\mathrm{i}\,(a+\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a-\mathrm{i}\,b)^{2/3}+(a-\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]+\\
&\mathrm{i}\,a\,A\,(a-\mathrm{i}\,b)^{2/3}\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&A\,(a-\mathrm{i}\,b)^{2/3}\,b\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&a\,(a-\mathrm{i}\,b)^{2/3}\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]-\\
&\left.\mathrm{i}\,(a-\mathrm{i}\,b)^{2/3}\,b\,B\,\text{Log}\left[(a+\mathrm{i}\,b)^{2/3}+(a+\mathrm{i}\,b)^{1/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}+(a+b\,\text{Tan}[c+d\,x])^{2/3}\right]\right)\,\left(\text{Sec}[c+d\,x]^2\right)^{1/6}\\
&\left(b\,\sqrt{\text{Sec}[c+d\,x]^2}-\frac{\text{Tan}[c+d\,x]\,(a+b\,\text{Tan}[c+d\,x])}{\sqrt{\text{Sec}[c+d\,x]^2}}\right)+\frac{1}{4\,(a-\mathrm{i}\,b)^{2/3}\,(a+\mathrm{i}\,b)^{2/3}\,(a+b\,\text{Tan}[c+d\,x])^{1/3}}
\end{aligned}
$$

$$\left(\mathrm{Sec}[c+d x]^2\right)^{1/6}\left(\frac{a+b\,\mathrm{Tan}[c+d x]}{\sqrt{\mathrm{Sec}[c+d x]^2}}\right)^{1/3}\left(-\frac{2\,i\,a\,A\,(a+i\,b)^{2/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-\right.$$

$$\frac{2\,A\,(a+i\,b)^{2/3}\,b^2\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-\frac{2\,a\,(a+i\,b)^{2/3}\,b\,B\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}+$$

$$\frac{2\,i\,(a+i\,b)^{2/3}\,b^2\,B\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a-i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}+\frac{2\,i\,a\,A\,(a-i\,b)^{2/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-$$

$$\frac{2\,A\,(a-i\,b)^{2/3}\,b^2\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-\frac{2\,a\,(a-i\,b)^{2/3}\,b\,B\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-$$

$$\frac{2\,i\,(a-i\,b)^{2/3}\,b^2\,B\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}\left((a+i\,b)^{1/3}-(a+b\,\mathrm{Tan}[c+d x])^{1/3}\right)}-\frac{i\,a\,A\,(a+i\,b)^{2/3}\left(\frac{(a-i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\frac{A\,(a+i\,b)^{2/3}\,b\left(\frac{(a-i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\frac{a\,(a+i\,b)^{2/3}\,B\left(\frac{(a-i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+$$

$$\frac{i\,(a+i\,b)^{2/3}\,b\,B\left(\frac{(a-i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a-i\,b)^{2/3}+(a-i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+$$

$$\frac{i\,a\,A\,(a-i\,b)^{2/3}\left(\frac{(a+i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\frac{A\,(a-i\,b)^{2/3}\,b\left(\frac{(a+i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\frac{a\,(a-i\,b)^{2/3}\,B\left(\frac{(a+i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\frac{i\,(a-i\,b)^{2/3}\,b\,B\left(\frac{(a+i\,b)^{1/3}\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{2/3}}+\frac{2\,b\,\mathrm{Sec}[c+d x]^2}{3\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}}\right)}{(a+i\,b)^{2/3}+(a+i\,b)^{1/3}\,(a+b\,\mathrm{Tan}[c+d x])^{1/3}+(a+b\,\mathrm{Tan}[c+d x])^{2/3}}-$$

$$\left.\left.\left.\frac{4\,i\,(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}\,b\,(A-i\,B)\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a-i\,b)^{1/3}}\right)^2\right)}+\frac{4\,i\,(a-i\,b)^{2/3}\,(a+i\,b)^{2/3}\,b\,(A+i\,B)\,\mathrm{Sec}[c+d\,x]^2}{3\,(a+b\,\mathrm{Tan}[c+d\,x])^{2/3}\left(1+\frac{1}{3}\left(1+\frac{2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1/3}}{(a+i\,b)^{1/3}}\right)^2\right)}\right)\right)\right)$$

- **Problem 477: Unable to integrate problem.**

$$\int\frac{i-\mathrm{Tan}[e+f\,x]}{(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\,dx$$

Optimal (type 3, 148 leaves, 5 steps) :

$$-\frac{i\,x}{2\,(c-i\,d)^{1/3}}-\frac{\sqrt{3}\,\mathrm{ArcTan}\left[\frac{1+\frac{2\,(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}{(c-i\,d)^{1/3}}}{\sqrt{3}}\right]}{(c-i\,d)^{1/3}\,f}-\frac{\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{2\,(c-i\,d)^{1/3}\,f}-\frac{3\,\mathrm{Log}\left[(c-i\,d)^{1/3}-(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}\right]}{2\,(c-i\,d)^{1/3}\,f}$$

Result (type 8, 29 leaves) :

$$\int\frac{i-\mathrm{Tan}[e+f\,x]}{(c+d\,\mathrm{Tan}[e+f\,x])^{1/3}}\,dx$$

- **Problem 479: Unable to integrate problem.**

$$\int\mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 403 leaves, 9 steps) :

$$-\frac{1}{d\,(1+m)\,(3+m)\,(4+m)}b\left(A\,b^3\left(12+7\,m+m^2\right)+4\,a\,b^2\,B\left(12+7\,m+m^2\right)-2\,a^3\,B\left(19+8\,m+m^2\right)-a^2\,A\,b\left(68+37\,m+5\,m^2\right)\right)\mathrm{Tan}[c+d\,x]^{1+m}+$$
$$\frac{1}{d\,(1+m)}\left(a^4\,A-6\,a^2\,A\,b^2+A\,b^4-4\,a^3\,b\,B+4\,a\,b^3\,B\right)\mathrm{Hypergeometric2F1}\left[1,\frac{1+m}{2},\frac{3+m}{2},-\mathrm{Tan}[c+d\,x]^2\right]\mathrm{Tan}[c+d\,x]^{1+m}+$$
$$\frac{b^2\left(2\,a\,A\,b\,(4+m)^2-b^2\,B\left(12+7\,m+m^2\right)+a^2\,B\left(26+9\,m+m^2\right)\right)\mathrm{Tan}[c+d\,x]^{2+m}}{d\,(2+m)\,(3+m)\,(4+m)}+\frac{1}{d\,(2+m)}$$
$$\left(4\,a^3\,A\,b-4\,a\,A\,b^3+a^4\,B-6\,a^2\,b^2\,B+b^4\,B\right)\mathrm{Hypergeometric2F1}\left[1,\frac{2+m}{2},\frac{4+m}{2},-\mathrm{Tan}[c+d\,x]^2\right]\mathrm{Tan}[c+d\,x]^{2+m}+$$
$$\frac{b\,(A\,b\,(4+m)+a\,B\,(7+m))\,\mathrm{Tan}[c+d\,x]^{1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{d\,(3+m)\,(4+m)}+\frac{b\,B\,\mathrm{Tan}[c+d\,x]^{1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{d\,(4+m)}$$

Result (type 8, 33 leaves) :

$$\int\mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^4\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

- **Problem 480: Unable to integrate problem.**

$$\int\mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 267 leaves, 8 steps):

$$\frac{b\left(3\,a\,A\,b\,(3+m)-b^2\,B\,(3+m)+2\,a^2\,B\,(4+m)\right)\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)\,(3+m)}+$$
$$\frac{\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1+m}{2},\,\frac{3+m}{2},\,-\text{Tan}[c+d\,x]^2\right]\,\text{Tan}[c+d\,x]^{1+m}}{d\,(1+m)}+\frac{b^2\,(A\,b\,(3+m)+a\,B\,(5+m))\,\text{Tan}[c+d\,x]^{2+m}}{d\,(2+m)\,(3+m)}+$$
$$\frac{\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{2+m}{2},\,\frac{4+m}{2},\,-\text{Tan}[c+d\,x]^2\right]\,\text{Tan}[c+d\,x]^{2+m}}{d\,(2+m)}+\frac{b\,B\,\text{Tan}[c+d\,x]^{1+m}\,(a+b\,\text{Tan}[c+d\,x])^2}{d\,(3+m)}$$

Result (type 8, 33 leaves):

$$\int \text{Tan}[c+d\,x]^m\,(a+b\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 486: Unable to integrate problem.

$$\int \frac{\text{Tan}[c+d\,x]^m\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Optimal (type 5, 659 leaves, 11 steps):

$$\frac{\left(a^4\,A-6\,a^2\,A\,b^2+A\,b^4+4\,a^3\,b\,B-4\,a\,b^3\,B\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1+m}{2},\,\frac{3+m}{2},\,-\text{Tan}[c+d\,x]^2\right]\,\text{Tan}[c+d\,x]^{1+m}}{\left(a^2+b^2\right)^4\,d\,(1+m)}-$$
$$\frac{1}{6\,a^4\,\left(a^2+b^2\right)^4\,d\,(1+m)}b\,\left(a\,b^6\,B\,m\,\left(1-m^2\right)+3\,a^2\,A\,b^5\,m\,\left(2-5\,m+m^2\right)+A\,b^7\,m\,\left(2-3\,m+m^2\right)+3\,a^3\,b^4\,B\,\left(2+5\,m+2\,m^2-m^3\right)+\right.$$
$$\left.a^7\,B\,\left(6-11\,m+6\,m^2-m^3\right)-a^6\,A\,b\,\left(24-26\,m+9\,m^2-m^3\right)+3\,a^4\,A\,b^3\,\left(8+10\,m-7\,m^2+m^3\right)-3\,a^5\,b^2\,B\,\left(12-m-4\,m^2+m^3\right)\right)$$
$$\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{b\,\text{Tan}[c+d\,x]}{a}\right]\,\text{Tan}[c+d\,x]^{1+m}-\frac{1}{\left(a^2+b^2\right)^4\,d\,(2+m)}$$
$$\left(4\,a^3\,A\,b-4\,a\,A\,b^3-a^4\,B+6\,a^2\,b^2\,B-b^4\,B\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{2+m}{2},\,\frac{4+m}{2},\,-\text{Tan}[c+d\,x]^2\right]\,\text{Tan}[c+d\,x]^{2+m}+$$
$$\frac{b\,(A\,b-a\,B)\,\text{Tan}[c+d\,x]^{1+m}}{3\,a\,\left(a^2+b^2\right)\,d\,(a+b\,\text{Tan}[c+d\,x])^3}+\frac{b\,\left(A\,b^3\,(2-m)-a^3\,B\,(5-m)+a^2\,A\,b\,(8-m)+a\,b^2\,B\,(1+m)\right)\,\text{Tan}[c+d\,x]^{1+m}}{6\,a^2\,\left(a^2+b^2\right)^2\,d\,(a+b\,\text{Tan}[c+d\,x])^2}+$$
$$\left(b\,\left(a\,b^4\,B\,\left(1-m^2\right)+2\,a^3\,b^2\,B\,\left(7+3\,m-m^2\right)+a^4\,A\,b\,\left(26-9\,m+m^2\right)+2\,a^2\,A\,b^3\,\left(2-6\,m+m^2\right)-a^5\,B\,\left(11-6\,m+m^2\right)+A\,b^5\,\left(2-3\,m+m^2\right)\right)\,\text{Tan}[c+d\,x]^{1+m}\right)\Big/$$
$$\left(6\,a^3\,\left(a^2+b^2\right)^3\,d\,(a+b\,\text{Tan}[c+d\,x])\right)$$

Result (type 8, 33 leaves):

$$\int \frac{\text{Tan}[c+d\,x]^m\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^4}\,dx$$

Problem 487: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^m (a+b\,\text{Tan}[c+d x])^{5/2} (A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 6, 193 leaves, 7 steps):

$$\left(a^2 (A+i B)\,\text{AppellF1}\left[1+m,-\frac{5}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},-i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}\right)\Big/\left(2 d (1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}\right)+\left(a^2 (A-i B)\,\text{AppellF1}\left[1+m,-\frac{5}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}\right)\Big/\left(2 d (1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}\right)$$

Result (type 8, 35 leaves):

$$\int \text{Tan}[c+d x]^m (a+b\,\text{Tan}[c+d x])^{5/2} (A+B\,\text{Tan}[c+d x])\,dx$$

Problem 488: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^m (a+b\,\text{Tan}[c+d x])^{3/2} (A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 6, 189 leaves, 7 steps):

$$\frac{a (A+i B)\,\text{AppellF1}\left[1+m,-\frac{3}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},-i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}}{2 d (1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}+\frac{a (A-i B)\,\text{AppellF1}\left[1+m,-\frac{3}{2},1,2+m,-\frac{b\,\text{Tan}[c+d x]}{a},i\,\text{Tan}[c+d x]\right]\text{Tan}[c+d x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d x]}}{2 d (1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d x]}{a}}}$$

Result (type 8, 35 leaves):

$$\int \text{Tan}[c+d x]^m (a+b\,\text{Tan}[c+d x])^{3/2} (A+B\,\text{Tan}[c+d x])\,dx$$

Problem 489: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^m \sqrt{a+b\,\text{Tan}[c+d x]}\,(A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 6, 187 leaves, 7 steps):

$$\frac{(A+\mathrm{i}\,B)\,\text{AppellF1}\left[1+m,-\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},-\mathrm{i}\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,d\,(1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}+$$

$$\frac{(A-\mathrm{i}\,B)\,\text{AppellF1}\left[1+m,-\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},\mathrm{i}\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{2\,d\,(1+m)\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}$$

Result (type 8, 35 leaves):

$$\int \text{Tan}[c+d\,x]^m\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

- **Problem 490: Unable to integrate problem.**

$$\int \frac{\text{Tan}[c+d\,x]^m\,(A+B\,\text{Tan}[c+d\,x])}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 6, 187 leaves, 7 steps):

$$\frac{(A+\mathrm{i}\,B)\,\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},-\mathrm{i}\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,(1+m)\sqrt{a+b\,\text{Tan}[c+d\,x]}}+$$

$$\frac{(A-\mathrm{i}\,B)\,\text{AppellF1}\left[1+m,\frac{1}{2},1,2+m,-\frac{b\,\text{Tan}[c+d\,x]}{a},\mathrm{i}\,\text{Tan}[c+d\,x]\right]\text{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]}{a}}}{2\,d\,(1+m)\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 8, 35 leaves):

$$\int \frac{\text{Tan}[c+d\,x]^m\,(A+B\,\text{Tan}[c+d\,x])}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

- **Problem 491: Unable to integrate problem.**

$$\int \frac{\text{Tan}[c+d\,x]^m\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 6, 193 leaves, 7 steps):

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},-\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}{2\,a\,d\,(1+m)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,\frac{3}{2},1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}{2\,a\,d\,(1+m)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 35 leaves) :

$$\int\frac{\mathrm{Tan}[c+d\,x]^m\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

- **Problem 492: Unable to integrate problem.**

$$\int\frac{\mathrm{Tan}[c+d\,x]^m\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 6, 193 leaves, 7 steps) :

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,\frac{5}{2},1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},-\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}{2\,a^2\,d\,(1+m)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,\frac{5}{2},1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}}}{2\,a^2\,d\,(1+m)\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 35 leaves) :

$$\int\frac{\mathrm{Tan}[c+d\,x]^m\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

- **Problem 493: Unable to integrate problem.**

$$\int\mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 183 leaves, 7 steps) :

$$\frac{1}{2\,d\,(1+m)}(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,-n,1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},-\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}+$$
$$\frac{1}{2\,d\,(1+m)}(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[1+m,-n,1,2+m,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\mathrm{i}\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Tan}[c+d\,x]^{1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}$$

Result (type 8, 33 leaves) :

$$\int \mathrm{Tan}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 494: Unable to integrate problem.

$$\int \mathrm{Tan}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 387 leaves, 9 steps):

$$-\frac{\left(A\,b^3\,(2+n)\,(3+n)\,(4+n)-a\left(b^2\,B\,(3+n)\,(4+n)-2\,a\,(3\,a\,B-A\,b\,(4+n))\right)\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^4\,d\,(1+n)\,(2+n)\,(3+n)\,(4+n)}+$$
$$\frac{(A-i\,B)\,\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-i\,b}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(i\,a+b)\,d\,(1+n)}-$$
$$\frac{(A+i\,B)\,\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+i\,b}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(i\,a-b)\,d\,(1+n)}-$$
$$\frac{\left(b^2\,B\,(3+n)\,(4+n)-2\,a\,(3\,a\,B-A\,b\,(4+n))\right)\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^3\,d\,(2+n)\,(3+n)\,(4+n)}-$$
$$\frac{(3\,a\,B-A\,b\,(4+n))\,\mathrm{Tan}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^2\,d\,(3+n)\,(4+n)}+\frac{B\,\mathrm{Tan}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b\,d\,(4+n)}$$

Result (type 8, 33 leaves):

$$\int \mathrm{Tan}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 495: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[c+d\,x]^3\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 291 leaves, 8 steps):

$$\frac{\left(2\,a^2\,B-a\,A\,b\,(3+n)-b^2\,B\left(6+5\,n+n^2\right)\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^3\,d\,(1+n)\,(2+n)\,(3+n)}+\frac{(i\,A+B)\,\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-i\,b}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(i\,a+b)\,d\,(1+n)}+$$
$$\frac{(A+i\,B)\,\mathrm{Hypergeometric2F1}\left[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+i\,b}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(a+i\,b)\,d\,(1+n)}-$$
$$\frac{(2\,a\,B-A\,b\,(3+n))\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^2\,d\,(2+n)\,(3+n)}+\frac{B\,\mathrm{Tan}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b\,d\,(3+n)}$$

Result (type 5, 671 leaves):

$$\frac{1}{2\,b^3\,d\,n\,(1+n)\,(2+n)\,(3+n)\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$

$$\mathrm{Cos}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,\Big(4\,a^3\,B\,n-2\,a^2\,A\,b\,n\,(3+n)-2\,a\,b^2\,B\,n\,(2+n)\,(3+n)-4\,a^2\,b\,B\,n^2\,\mathrm{Tan}[c+d\,x]+$$
$$2\,a\,A\,b^2\,n^2\,(3+n)\,\mathrm{Tan}[c+d\,x]-2\,b^3\,B\,n\,(2+n)\,(3+n)\,\mathrm{Tan}[c+d\,x]+2\,a\,b^2\,B\,n^2\,\mathrm{Tan}[c+d\,x]^2+2\,a\,b^2\,B\,n^3\,\mathrm{Tan}[c+d\,x]^2+$$
$$2\,A\,b^3\,n\,(3+n)\,\mathrm{Tan}[c+d\,x]^2+2\,A\,b^3\,n^2\,(3+n)\,\mathrm{Tan}[c+d\,x]^2+4\,b^3\,B\,n\,\mathrm{Tan}[c+d\,x]^3+6\,b^3\,B\,n^2\,\mathrm{Tan}[c+d\,x]^3+2\,b^3\,B\,n^3\,\mathrm{Tan}[c+d\,x]^3-$$
$$A\,b^3\,(1+n)\,(2+n)\,(3+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,\frac{a+i\,b}{i\,b-b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-i+\mathrm{Tan}[c+d\,x])}\right)^{-n}-$$
$$i\,b^3\,B\,(1+n)\,(2+n)\,(3+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,\frac{a+i\,b}{i\,b-b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-i+\mathrm{Tan}[c+d\,x])}\right)^{-n}-$$
$$A\,b^3\,(1+n)\,(2+n)\,(3+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,-\frac{a-i\,b}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\right)^{-n}+$$
$$i\,b^3\,B\,(1+n)\,(2+n)\,(3+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,-\frac{a-i\,b}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{i\,b+b\,\mathrm{Tan}[c+d\,x]}\right)^{-n}-$$
$$4\,a^3\,B\,n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}+2\,a^2\,A\,b\,n\,(3+n)\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}\Big)$$

- **Problem 496: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 5, 219 leaves, 7 steps):

$$-\frac{(a\,B-A\,b\,(2+n))\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b^2\,d\,(1+n)\,(2+n)}+\frac{(i\,A+B)\,\mathrm{Hypergeometric2F1}\Big[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a-i\,b}\Big]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(a-i\,b)\,d\,(1+n)}+$$
$$\frac{(A+i\,B)\,\mathrm{Hypergeometric2F1}\Big[1,1+n,2+n,\frac{a+b\,\mathrm{Tan}[c+d\,x]}{a+i\,b}\Big]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{2\,(i\,a-b)\,d\,(1+n)}+\frac{B\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^{1+n}}{b\,d\,(2+n)}$$

Result (type 5, 495 leaves):

$$\frac{1}{2\,b^2\,d\,n\,(1+n)\,(2+n)\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}\,\mathrm{Cos}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^n$$
$$(A+B\,\mathrm{Tan}[c+d\,x])\,\Bigg(-2\,a^2\,B\,n+2\,a\,A\,b\,n\,(2+n)+2\,a\,b\,B\,n^2\,\mathrm{Tan}[c+d\,x]+2\,A\,b^2\,n\,(2+n)\,\mathrm{Tan}[c+d\,x]+2\,b^2\,B\,n\,\mathrm{Tan}[c+d\,x]^2+$$
$$2\,b^2\,B\,n^2\,\mathrm{Tan}[c+d\,x]^2+\mathrm{i}\,A\,b^2\,(1+n)\,(2+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,\frac{a+\mathrm{i}\,b}{\mathrm{i}\,b-b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-\mathrm{i}+\mathrm{Tan}[c+d\,x])}\right)^{-n}-$$
$$b^2\,B\,(1+n)\,(2+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,\frac{a+\mathrm{i}\,b}{\mathrm{i}\,b-b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{b\,(-\mathrm{i}+\mathrm{Tan}[c+d\,x])}\right)^{-n}-$$
$$\mathrm{i}\,A\,b^2\,(1+n)\,(2+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,-\frac{a-\mathrm{i}\,b}{\mathrm{i}\,b+b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\mathrm{i}\,b+b\,\mathrm{Tan}[c+d\,x]}\right)^{-n}-$$
$$b^2\,B\,(1+n)\,(2+n)\,\mathrm{Hypergeometric2F1}\Big[-n,-n,1-n,-\frac{a-\mathrm{i}\,b}{\mathrm{i}\,b+b\,\mathrm{Tan}[c+d\,x]}\Big]\left(\frac{a+b\,\mathrm{Tan}[c+d\,x]}{\mathrm{i}\,b+b\,\mathrm{Tan}[c+d\,x]}\right)^{-n}+2\,a^2\,B\,n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}\Bigg)$$

Problem 507: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 105 leaves, 6 steps):

$$-\frac{2\,(-1)^{1/4}\,a\,(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\Big[(-1)^{3/4}\,\sqrt{\mathrm{Cot}[c+d\,x]}\Big]}{d}+\frac{2\,\mathrm{i}\,a\,B}{5\,d\,\mathrm{Cot}[c+d\,x]^{5/2}}+\frac{2\,a\,(\mathrm{i}\,A+B)}{3\,d\,\mathrm{Cot}[c+d\,x]^{3/2}}+\frac{2\,a\,(A-\mathrm{i}\,B)}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 3, 362 leaves):

$$a\,\Bigg(\frac{1}{d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$
$$\sqrt{\mathrm{Cot}[c+d\,x]}\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])\,(B+A\,\mathrm{Cot}[c+d\,x])\,\Bigg(\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^2\left(\frac{2\,\mathrm{Cos}[c]}{15}-\frac{2}{15}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(5\,\mathrm{i}\,A\,\mathrm{Cos}[c]+5\,B\,\mathrm{Cos}[c]+3\,\mathrm{i}\,B\,\mathrm{Sin}[c])+$$
$$\mathrm{Sec}[c]\left(\frac{2\,\mathrm{Cos}[c]}{15}-\frac{2}{15}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(-5\,\mathrm{i}\,A\,\mathrm{Cos}[c]-5\,B\,\mathrm{Cos}[c]+15\,A\,\mathrm{Sin}[c]-18\,\mathrm{i}\,B\,\mathrm{Sin}[c])+\mathrm{i}\,B\,\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]^3$$
$$\left(\frac{2\,\mathrm{Cos}[c]}{5}-\frac{2}{5}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\mathrm{Sin}[d\,x]+\mathrm{Sec}[c]\,\mathrm{Sec}[c+d\,x]\left(\frac{2\,\mathrm{Cos}[c]}{5}-\frac{2}{5}\,\mathrm{i}\,\mathrm{Sin}[c]\right)(5\,A\,\mathrm{Sin}[d\,x]-6\,\mathrm{i}\,B\,\mathrm{Sin}[d\,x])\Bigg)\,\mathrm{Sin}[c+d\,x]^2+$$
$$\Big((\mathrm{i}\,A+B)\,\mathrm{ArcCosh}\big[e^{2\,\mathrm{i}\,(c+d\,x)}\big]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(\mathrm{i}+\mathrm{Cot}[c+d\,x])\,(B+A\,\mathrm{Cot}[c+d\,x])\,(\mathrm{Cos}[c]-\mathrm{i}\,\mathrm{Sin}[c])\,\mathrm{Sin}[c+d\,x]^2\,\sqrt{\mathrm{i}\,\mathrm{Tan}[c+d\,x]}\Big)\Big/$$
$$(d\,(\mathrm{Cos}[d\,x]+\mathrm{i}\,\mathrm{Sin}[d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x]))\Bigg)$$

Problem 508: Result more than twice size of optimal antiderivative.

$$\int\mathrm{Cot}[c+d\,x]^{7/2}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+d\,x])^2\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 128 leaves, 6 steps):

$$\frac{4\,(-1)^{1/4}\,a^2\,(A-\mathrm{i}\,B)\,\text{ArcTanh}\left[(-1)^{3/4}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{d}+$$
$$\frac{4\,a^2\,(A-\mathrm{i}\,B)\,\sqrt{\text{Cot}[c+d\,x]}}{d}-\frac{2\,a^2\,(7\,\mathrm{i}\,A+5\,B)\,\text{Cot}[c+d\,x]^{3/2}}{15\,d}-\frac{2\,A\,\text{Cot}[c+d\,x]^{3/2}\,\left(\mathrm{i}\,a^2+a^2\,\text{Cot}[c+d\,x]\right)}{5\,d}$$

Result (type 3, 330 leaves):

$$a^2\left(\frac{1}{d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\sqrt{\text{Cot}[c+d\,x]}\,\,(\mathrm{i}+\text{Cot}[c+d\,x])^2\,(B+A\,\text{Cot}[c+d\,x])\right.$$
$$\left(\text{Csc}[c]\,(-10\,\mathrm{i}\,A\,\text{Cos}[c]-5\,B\,\text{Cos}[c]+33\,A\,\text{Sin}[c]-30\,\mathrm{i}\,B\,\text{Sin}[c])\left(\frac{2}{15}\,\text{Cos}[2\,c]-\frac{2}{15}\,\mathrm{i}\,\text{Sin}[2\,c]\right)+\text{Csc}[c+d\,x]^2\right.$$
$$\left.\left(-\frac{2}{5}\,A\,\text{Cos}[2\,c]+\frac{2}{5}\,\mathrm{i}\,A\,\text{Sin}[2\,c]\right)+\text{Csc}[c]\,\text{Csc}[c+d\,x]\left(\frac{2}{3}\,\text{Cos}[2\,c]-\frac{2}{3}\,\mathrm{i}\,\text{Sin}[2\,c]\right)(2\,\mathrm{i}\,A\,\text{Sin}[d\,x]+B\,\text{Sin}[d\,x])\right)\text{Sin}[c+d\,x]^3+$$
$$\left(2\,(A-\mathrm{i}\,B)\,\text{ArcCosh}\left[e^{2\,\mathrm{i}\,(c+d\,x)}\right]\,(\mathrm{i}+\text{Cot}[c+d\,x])^2\,(B+A\,\text{Cot}[c+d\,x])\,(\text{Cos}[2\,c]-\mathrm{i}\,\text{Sin}[2\,c])\,\text{Sin}[c+d\,x]^3\right)\Big/$$
$$\left.\left(d\,\text{Cot}[c+d\,x]^{3/2}\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(\mathrm{i}\,\text{Tan}[c+d\,x])^{3/2}\right)\right)$$

Problem 513: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c+d\,x]^{9/2}\,(a+\mathrm{i}\,a\,\text{Tan}[c+d\,x])^3\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 171 leaves, 7 steps):

$$\frac{8\,(-1)^{1/4}\,a^3\,(\mathrm{i}\,A+B)\,\text{ArcTanh}\left[(-1)^{3/4}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{d}+\frac{8\,a^3\,(\mathrm{i}\,A+B)\,\sqrt{\text{Cot}[c+d\,x]}}{d}+\frac{8\,a^3\,(23\,A-21\,\mathrm{i}\,B)\,\text{Cot}[c+d\,x]^{3/2}}{105\,d}-$$
$$\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{3/2}\,(\mathrm{i}\,a+a\,\text{Cot}[c+d\,x])^2}{7\,d}-\frac{2\,(11\,\mathrm{i}\,A+7\,B)\,\text{Cot}[c+d\,x]^{3/2}\,\left(\mathrm{i}\,a^3+a^3\,\text{Cot}[c+d\,x]\right)}{35\,d}$$

Result (type 3, 384 leaves):

$$a^3\left(\frac{1}{d\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\sqrt{\text{Cot}[c+d\,x]}\,\,(\mathrm{i}+\text{Cot}[c+d\,x])^3\,(B+A\,\text{Cot}[c+d\,x])\right.$$
$$\left(\text{Csc}[c]\,(155\,A\,\text{Cos}[c]-105\,\mathrm{i}\,B\,\text{Cos}[c]+483\,\mathrm{i}\,A\,\text{Sin}[c]+441\,B\,\text{Sin}[c])\left(\frac{2}{105}\,\text{Cos}[3\,c]-\frac{2}{105}\,\mathrm{i}\,\text{Sin}[3\,c]\right)+\text{Csc}[c]\,\text{Csc}[c+d\,x]^2\right.$$
$$(5\,A\,\text{Cos}[c]+21\,\mathrm{i}\,A\,\text{Sin}[c]+7\,B\,\text{Sin}[c])\left(-\frac{2}{35}\,\text{Cos}[3\,c]+\frac{2}{35}\,\mathrm{i}\,\text{Sin}[3\,c]\right)+A\,\text{Csc}[c]\,\text{Csc}[c+d\,x]^3\left(\frac{2}{7}\,\text{Cos}[3\,c]-\frac{2}{7}\,\mathrm{i}\,\text{Sin}[3\,c]\right)\text{Sin}[d\,x]+$$
$$\left.\text{Csc}[c]\,\text{Csc}[c+d\,x]\left(-\frac{2}{21}\,\text{Cos}[3\,c]+\frac{2}{21}\,\mathrm{i}\,\text{Sin}[3\,c]\right)(31\,A\,\text{Sin}[d\,x]-21\,\mathrm{i}\,B\,\text{Sin}[d\,x])\right)\text{Sin}[c+d\,x]^4+$$
$$\left(4\,(A-\mathrm{i}\,B)\,\text{ArcCosh}\left[e^{2\,\mathrm{i}\,(c+d\,x)}\right]\,(\mathrm{i}+\text{Cot}[c+d\,x])^3\,(B+A\,\text{Cot}[c+d\,x])\,(\text{Cos}[3\,c]-\mathrm{i}\,\text{Sin}[3\,c])\,\text{Sin}[c+d\,x]^4\right)\Big/$$
$$\left.\left(d\,\sqrt{\text{Cot}[c+d\,x]}\,\,(\text{Cos}[d\,x]+\mathrm{i}\,\text{Sin}[d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,\sqrt{\mathrm{i}\,\text{Tan}[c+d\,x]}\right)\right)$$

Problem 518: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^3 (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Cot}[c+d x]}} \, dx$$

Optimal (type 3, 173 leaves, 7 steps):

$$\frac{8 (-1)^{1/4} a^3 (A-i B) \operatorname{ArcTanh}\left[(-1)^{3/4} \sqrt{\operatorname{Cot}[c+d x]}\right]}{d} - \frac{8 a^3 (21 A-23 i B)}{105 d \operatorname{Cot}[c+d x]^{3/2}} + \frac{8 a^3 (i A+B)}{d \sqrt{\operatorname{Cot}[c+d x]}} + \frac{2 i a B (i a+a \operatorname{Cot}[c+d x])^2}{7 d \operatorname{Cot}[c+d x]^{7/2}} - \frac{2 (7 A-11 i B) \left(i a^3+a^3 \operatorname{Cot}[c+d x]\right)}{35 d \operatorname{Cot}[c+d x]^{5/2}}$$

Result (type 3, 433 leaves):

$$a^3 \left(\frac{1}{d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])} \sqrt{\operatorname{Cot}[c+d x]} (i+\operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) \left(\operatorname{Sec}[c] (105 A \operatorname{Cos}[c]-155 i B \operatorname{Cos}[c]+441 i A \operatorname{Sin}[c]+483 B \operatorname{Sin}[c]) \left(\frac{2}{105} \operatorname{Cos}[3 c]-\frac{2}{105} i \operatorname{Sin}[3 c]\right) + \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^2 (105 A \operatorname{Cos}[c]-170 i B \operatorname{Cos}[c]+21 i A \operatorname{Sin}[c]+63 B \operatorname{Sin}[c]) \left(-\frac{2}{105} \operatorname{Cos}[3 c]+\frac{2}{105} i \operatorname{Sin}[3 c]\right) + \operatorname{Sec}[c+d x]^4 \left(-\frac{2}{7} i B \operatorname{Cos}[3 c]-\frac{2}{7} B \operatorname{Sin}[3 c]\right) + \operatorname{Sec}[c] \operatorname{Sec}[c+d x]^3 \left(\frac{2}{5} \operatorname{Cos}[3 c]-\frac{2}{5} i \operatorname{Sin}[3 c]\right) (-i A \operatorname{Sin}[d x]-3 B \operatorname{Sin}[d x]) + \operatorname{Sec}[c] \operatorname{Sec}[c+d x] \left(\frac{2}{5} \operatorname{Cos}[3 c]-\frac{2}{5} i \operatorname{Sin}[3 c]\right) (21 i A \operatorname{Sin}[d x]+23 B \operatorname{Sin}[d x])\right) \operatorname{Sin}[c+d x]^4 - \left(4 (A-i B) \operatorname{ArcCosh}\left[e^{2 i (c+d x)}\right] \sqrt{\operatorname{Cot}[c+d x]} (i+\operatorname{Cot}[c+d x])^3 (B+A \operatorname{Cot}[c+d x]) (\operatorname{Cos}[3 c]-i \operatorname{Sin}[3 c]) \operatorname{Sin}[c+d x]^4 \sqrt{i \operatorname{Tan}[c+d x]}\right) \Big/ \left(d (\operatorname{Cos}[d x]+i \operatorname{Sin}[d x])^3 (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\right)\right)$$

Problem 540: Unable to integrate problem.

$$\int \frac{\sqrt{a+i a \operatorname{Tan}[c+d x]} (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Cot}[c+d x]}} \, dx$$

Optimal (type 3, 192 leaves, 9 steps):

$$-\frac{(-1)^{3/4} \sqrt{a} (2 A-i B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{d} - \frac{(1+i) \sqrt{a} (A-i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Tan}[c+d x]}}{d} + \frac{B \sqrt{a+i a \operatorname{Tan}[c+d x]}}{d \sqrt{\operatorname{Cot}[c+d x]}}$$

Result (type 8, 40 leaves):

$$\int \frac{\sqrt{a + i\, a \operatorname{Tan}[c + d x]}\, (A + B \operatorname{Tan}[c + d x])}{\sqrt{\operatorname{Cot}[c + d x]}}\, dx$$

Problem 545: Result more than twice size of optimal antiderivative.

$$\int \sqrt{\operatorname{Cot}[c + d x]}\, (a + i\, a \operatorname{Tan}[c + d x])^{3/2}\, (A + B \operatorname{Tan}[c + d x])\, dx$$

Optimal (type 3, 196 leaves, 9 steps):

$$-\frac{(-1)^{3/4} a^{3/2} (2 i A + 3 B) \operatorname{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c + d x]} \sqrt{\operatorname{Tan}[c + d x]}}{d} + \frac{(2 - 2 i) a^{3/2} (A - i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c + d x]} \sqrt{\operatorname{Tan}[c + d x]}}{d} + \frac{i a B \sqrt{a + i a \operatorname{Tan}[c + d x]}}{d \sqrt{\operatorname{Cot}[c + d x]}}$$

Result (type 3, 485 leaves):

$$\left(e^{-i (2 c+d x)} \sqrt{e^{i d x}} \sqrt{-1 + e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1 + e^{2 i (c+d x)}}} \sqrt{\frac{i \left(1 + e^{2 i (c+d x)}\right)}{-1 + e^{2 i (c+d x)}}} \left(-16 i (A - i B) \operatorname{Log}\left[e^{i (c+d x)} + \sqrt{-1 + e^{2 i (c+d x)}}\right] + \sqrt{2} (2 i A + 3 B) \left(\operatorname{Log}\left[1 - 3 e^{2 i (c+d x)} - 2 \sqrt{2} e^{i (c+d x)} \sqrt{-1 + e^{2 i (c+d x)}}\right] - \operatorname{Log}\left[1 - 3 e^{2 i (c+d x)} + 2 \sqrt{2} e^{i (c+d x)} \sqrt{-1 + e^{2 i (c+d x)}}\right]\right)\right) (a + i a \operatorname{Tan}[c + d x])^{3/2} (A + B \operatorname{Tan}[c + d x])\right) \Big/ \left(4 \sqrt{2} d \operatorname{Sec}[c + d x]^{5/2} (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x])^{3/2} (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x])\right) + \left(\operatorname{Cos}[c + d x]^2 \sqrt{\operatorname{Cot}[c + d x]} (i B \operatorname{Sec}[c] \operatorname{Sec}[c + d x] (\operatorname{Cos}[c] - i \operatorname{Sin}[c]) \operatorname{Sin}[d x] + i (B \operatorname{Cos}[c] - i B \operatorname{Sin}[c]) \operatorname{Tan}[c]) (a + i a \operatorname{Tan}[c + d x])^{3/2} (A + B \operatorname{Tan}[c + d x])\right) \Big/ (d (\operatorname{Cos}[d x] + i \operatorname{Sin}[d x]) (A \operatorname{Cos}[c + d x] + B \operatorname{Sin}[c + d x]))$$

Problem 549: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c + d x]^{7/2} (a + i a \operatorname{Tan}[c + d x])^{5/2} (A + B \operatorname{Tan}[c + d x])\, dx$$

Optimal (type 3, 205 leaves, 7 steps):

$$-\frac{(4 + 4 i) a^{5/2} (A - i B) \operatorname{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+i a \operatorname{Tan}[c+d x]}}\right] \sqrt{\operatorname{Cot}[c + d x]} \sqrt{\operatorname{Tan}[c + d x]}}{d} + \frac{2 a^2 (38 A - 35 i B) \sqrt{\operatorname{Cot}[c + d x]} \sqrt{a + i a \operatorname{Tan}[c + d x]}}{15 d} - \frac{2 a^2 (8 i A + 5 B) \operatorname{Cot}[c + d x]^{3/2} \sqrt{a + i a \operatorname{Tan}[c + d x]}}{15 d} - \frac{2 a A \operatorname{Cot}[c + d x]^{5/2} (a + i a \operatorname{Tan}[c + d x])^{3/2}}{5 d}$$

Result (type 3, 416 leaves) :

$$-\left(4\sqrt{2}\ (A-i B)\ e^{-i (3 c+d x)}\ \sqrt{e^{i d x}}\ \sqrt{-1+e^{2 i (c+d x)}}\ \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}}\ \sqrt{\frac{i \left(1+e^{2 i (c+d x)}\right)}{-1+e^{2 i (c+d x)}}}\ \text{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right] (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d \text{Sec}[c+d x]^{7/2} (\text{Cos}[d x]+i \text{Sin}[d x])^{5/2} (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$

$$\left(\text{Cos}[c+d x]^3 \sqrt{\text{Cot}[c+d x]}\ \left((13 A-10 i B) \left(\frac{8}{15} \text{Cos}[2 c]-\frac{8}{15} i \text{Sin}[2 c]\right)+\text{Csc}[c+d x]^2 \left(-\frac{2}{5} A \text{Cos}[2 c]+\frac{2}{5} i A \text{Sin}[2 c]\right)+(11 A-5 i B) \text{Csc}[c+d x] \left(-\frac{2}{15} i \text{Cos}[3 c+d x]-\frac{2}{15} \text{Sin}[3 c+d x]\right)\right) (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

- **Problem 550: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^{5/2} (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\, dx$$

Optimal (type 3, 230 leaves, 10 steps) :

$$\frac{2 (-1)^{3/4} a^{5/2} B\, \text{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}+\frac{(4+4 i)\, a^{5/2} (i A+B)\, \text{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Tan}[c+d x]}}{d}-\frac{2 a^2 (2 i A+B) \sqrt{\text{Cot}[c+d x]}\ \sqrt{a+i a \text{Tan}[c+d x]}}{d}-\frac{2 a A \text{Cot}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^{3/2}}{3 d}$$

Result (type 3, 496 leaves) :

$$\left(e^{-i (3 c+d x)} \sqrt{e^{i d x}} \sqrt{-1+e^{2 i (c+d x)}} \sqrt{\frac{e^{i (c+d x)}}{1+e^{2 i (c+d x)}}} \sqrt{\frac{i \left(1+e^{2 i (c+d x)}\right)}{-1+e^{2 i (c+d x)}}} \left(16 (i A+B) \text{Log}\left[e^{i (c+d x)}+\sqrt{-1+e^{2 i (c+d x)}}\right]+\right.\right.$$
$$\left.\left.\sqrt{2} B \left(-\text{Log}\left[1-3 e^{2 i (c+d x)}-2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]+\text{Log}\left[1-3 e^{2 i (c+d x)}+2 \sqrt{2} e^{i (c+d x)} \sqrt{-1+e^{2 i (c+d x)}}\right]\right)\right)$$
$$\left.(a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(2 \sqrt{2} d \text{Sec}[c+d x]^{7/2} (\text{Cos}[d x]+i \text{Sin}[d x])^{5/2} (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$
$$\left(\text{Cos}[c+d x]^3 \sqrt{\text{Cot}[c+d x]} \left((8 A-3 i B) \left(-\frac{2}{3} i \text{Cos}[2 c]-\frac{2}{3} \text{Sin}[2 c]\right)+\text{Csc}[c+d x] \left(-\frac{2}{3} A \text{Cos}[3 c+d x]+\frac{2}{3} i A \text{Sin}[3 c+d x]\right)\right)\right.$$
$$\left.(a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left(d (\text{Cos}[d x]+i \text{Sin}[d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

- **Problem 551: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^{3/2} (a+i a \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x]) \, dx$$

Optimal (type 3, 236 leaves, 10 steps):

$$\frac{(-1)^{3/4} a^{5/2} (2 A-5 i B) \text{ArcTan}\left[\frac{(-1)^{3/4} \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{(4+4 i) a^{5/2} (A-i B) \text{ArcTanh}\left[\frac{(1+i) \sqrt{a} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{a^2 (2 i A-B) \sqrt{a+i a \text{Tan}[c+d x]}}{d \sqrt{\text{Cot}[c+d x]}}-\frac{2 a A \sqrt{\text{Cot}[c+d x]} (a+i a \text{Tan}[c+d x])^{3/2}}{d}$$

Result (type 3, 496 leaves):

$$\Big(e^{-i(3c+dx)}\sqrt{e^{idx}}\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\sqrt{\frac{i\left(1+e^{2i(c+dx)}\right)}{-1+e^{2i(c+dx)}}}\Big(32(A-iB)\,\text{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]-$$

$$\sqrt{2}(2A-5iB)\Big(\text{Log}\left[1-3e^{2i(c+dx)}-2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]-\text{Log}\left[1-3e^{2i(c+dx)}+2\sqrt{2}\,e^{i(c+dx)}\sqrt{-1+e^{2i(c+dx)}}\right]\Big)\Big)$$

$$(a+i\,a\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])\Big)\Big/\left(4\sqrt{2}\,d\,\text{Sec}[c+dx]^{7/2}(\text{Cos}[dx]+i\,\text{Sin}[dx])^{5/2}(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)+$$

$$\Big(\text{Cos}[c+dx]^3\sqrt{\text{Cot}[c+dx]}\,(\text{Sec}[c](2A\,\text{Cos}[c]+B\,\text{Sin}[c])(-\text{Cos}[2c]+i\,\text{Sin}[2c])-B\,\text{Sec}[c]\,\text{Sec}[c+dx](\text{Cos}[2c]-i\,\text{Sin}[2c])\,\text{Sin}[dx])$$

$$(a+i\,a\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])\Big)\Big/\left(d\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^2(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\right)$$

Problem 552: Result more than twice size of optimal antiderivative.

$$\int\sqrt{\text{Cot}[c+dx]}\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}(A+B\,\text{Tan}[c+dx])\,dx$$

Optimal (type 3, 246 leaves, 10 steps):

$$-\frac{(-1)^{3/4}a^{5/2}(20\,i\,A+23B)\,\text{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+i\,a\,\text{Tan}[c+dx]}}\right]\sqrt{\text{Cot}[c+dx]}\sqrt{\text{Tan}[c+dx]}}{4d}+$$

$$\frac{(4-4i)\,a^{5/2}(A-iB)\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+i\,a\,\text{Tan}[c+dx]}}\right]\sqrt{\text{Cot}[c+dx]}\sqrt{\text{Tan}[c+dx]}}{d}-$$

$$\frac{a^2(4A-7iB)\sqrt{a+i\,a\,\text{Tan}[c+dx]}}{4d\sqrt{\text{Cot}[c+dx]}}+\frac{i\,a\,B\,(a+i\,a\,\text{Tan}[c+dx])^{3/2}}{2d\sqrt{\text{Cot}[c+dx]}}$$

Result (type 3, 606 leaves):

$$\Big(\text{Cos}[c+d x]^3\sqrt{\text{Cot}[c+d x]}\Big(\text{Sec}[c]\,(2 B\,\text{Cos}[c]-4 A\,\text{Sin}[c]+9 i B\,\text{Sin}[c])\left(\frac{1}{4}\text{Cos}[2c]-\frac{1}{4}i\,\text{Sin}[2c]\right)+\text{Sec}[c+d x]^2\left(-\frac{1}{2}B\,\text{Cos}[2c]+\frac{1}{2}i B\,\text{Sin}[2c]\right)+$$
$$\text{Sec}[c]\,\text{Sec}[c+d x]\left(\frac{1}{4}\text{Cos}[2c]-\frac{1}{4}i\,\text{Sin}[2c]\right)(-4 A\,\text{Sin}[d x]+9 i B\,\text{Sin}[d x])\Big)(a+i a\,\text{Tan}[c+d x])^{5/2}(A+B\,\text{Tan}[c+d x])\Big)\Big/$$
$$\big(d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\big)+\frac{1}{8\sqrt{2}\,d\,(\text{Cos}[d x]+i\,\text{Sin}[d x])^2(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])}$$
$$\text{Cos}[c+d x]^3\sqrt{\text{Cot}[c+d x]}\left(\sqrt{2}\,(-20 i A-23 B)\,\text{Log}\left[-\frac{2 e^{\frac{7 i c}{2}}\left(i\sqrt{2}+\sqrt{2}\,e^{i(c+d x)}-2\sqrt{-1+e^{2 i(c+d x)}}\right)}{(20 A-23 i B)\left(-i+e^{i(c+d x)}\right)}\right]+\right.$$
$$\sqrt{2}\,(20 i A+23 B)\,\text{Log}\left[-\frac{2 e^{\frac{7 i c}{2}}\left(-i\sqrt{2}+\sqrt{2}\,e^{i(c+d x)}+2\sqrt{-1+e^{2 i(c+d x)}}\right)}{(20 A-23 i B)\left(i+e^{i(c+d x)}\right)}\right]-$$
$$\left.64 i\,(A-i B)\,\text{Log}\left[(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c+d x]+i\,\text{Sin}[c+d x]+\sqrt{-1+\text{Cos}[2(c+d x)]+i\,\text{Sin}[2(c+d x)]}\right)\right]\right)$$
$$\sqrt{i\,(i+\text{Cot}[c+d x])\,\text{Sin}[c+d x]^2}\;(\text{Cos}[3c+d x]-i\,\text{Sin}[3c+d x])\,(a+i a\,\text{Tan}[c+d x])^{5/2}(A+B\,\text{Tan}[c+d x])$$

- **Problem 553: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i a\,\text{Tan}[c+d x])^{5/2}(A+B\,\text{Tan}[c+d x])}{\sqrt{\text{Cot}[c+d x]}}\,dx$$

Optimal (type 3, 292 leaves, 11 steps):

$$-\frac{(-1)^{3/4}a^{5/2}(46 A-45 i B)\,\text{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{8 d}-$$
$$\frac{(4+4 i)\,a^{5/2}(A-i B)\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+i a\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{d}-$$
$$\frac{a^2(2 A-3 i B)\sqrt{a+i a\,\text{Tan}[c+d x]}}{4 d\,\text{Cot}[c+d x]^{3/2}}+\frac{a^2(18 i A+19 B)\sqrt{a+i a\,\text{Tan}[c+d x]}}{8 d\sqrt{\text{Cot}[c+d x]}}+\frac{i a B\,(a+i a\,\text{Tan}[c+d x])^{3/2}}{3 d\,\text{Cot}[c+d x]^{3/2}}$$

Result (type 3, 666 leaves):

$$\frac{1}{d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$\text{Cos}[c+d\,x]^3\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\text{Sec}[c]\,(12\,A\,\text{Cos}[c]-26\,i\,B\,\text{Cos}[c]+54\,i\,A\,\text{Sin}[c]+65\,B\,\text{Sin}[c])\left(\frac{1}{24}\text{Cos}[2\,c]-\frac{1}{24}\,i\,\text{Sin}[2\,c]\right)+$$
$$\text{Sec}[c]\,\text{Sec}[c+d\,x]^2\,(-6\,A\,\text{Cos}[c]+13\,i\,B\,\text{Cos}[c]-4\,B\,\text{Sin}[c])\left(\frac{1}{12}\text{Cos}[2\,c]-\frac{1}{12}\,i\,\text{Sin}[2\,c]\right)-B\,\text{Sec}[c]\,\text{Sec}[c+d\,x]^3$$
$$\left(\frac{1}{3}\text{Cos}[2\,c]-\frac{1}{3}\,i\,\text{Sin}[2\,c]\right)\text{Sin}[d\,x]+\text{Sec}[c]\,\text{Sec}[c+d\,x]\left(\frac{1}{24}\text{Cos}[2\,c]-\frac{1}{24}\,i\,\text{Sin}[2\,c]\right)(54\,i\,A\,\text{Sin}[d\,x]+65\,B\,\text{Sin}[d\,x])\Bigg)$$
$$(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])-\frac{1}{16\sqrt{2}\,d\,(\text{Cos}[d\,x]+i\,\text{Sin}[d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}$$
$$\text{Cos}[c+d\,x]^3\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\sqrt{2}\,(46\,A-45\,i\,B)\,\text{Log}\Big[\frac{2\,e^{\frac{7\,i\,c}{2}}\left(\sqrt{2}-i\sqrt{2}\,e^{i\,(c+d\,x)}+2\,i\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{(46\,A-45\,i\,B)\left(-i+e^{i\,(c+d\,x)}\right)}\Big]+$$
$$\sqrt{2}\,(-46\,A+45\,i\,B)\,\text{Log}\Big[\frac{2\,e^{\frac{7\,i\,c}{2}}\left(-i\sqrt{2}+\sqrt{2}\,e^{i\,(c+d\,x)}+2\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right)}{(46\,i\,A+45\,B)\left(i+e^{i\,(c+d\,x)}\right)}\Big]+$$
$$128\,(A-i\,B)\,\text{Log}\Big[(\text{Cos}[c]-i\,\text{Sin}[c])\left(\text{Cos}[c+d\,x]+i\,\text{Sin}[c+d\,x]+\sqrt{-1+\text{Cos}[2\,(c+d\,x)]+i\,\text{Sin}[2\,(c+d\,x)]}\right)\Big]\Bigg)$$
$$\sqrt{i\,(i+\text{Cot}[c+d\,x])\,\text{Sin}[c+d\,x]^2}\,(\text{Cos}[3\,c+d\,x]-i\,\text{Sin}[3\,c+d\,x])\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])$$

- **Problem 562: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 260 leaves, 8 steps):

$$\frac{\left(\frac{1}{8}+\frac{i}{8}\right)(A-i\,B)\,\text{ArcTanh}\Big[\frac{(1+i)\sqrt{a}\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}\Big]\sqrt{\text{Cot}[c+d\,x]}\sqrt{\text{Tan}[c+d\,x]}}{a^{5/2}\,d}+\frac{(A+i\,B)\sqrt{\text{Cot}[c+d\,x]}}{5\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{5/2}}+$$
$$\frac{(17\,A+7\,i\,B)\sqrt{\text{Cot}[c+d\,x]}}{30\,a\,d\,(a+i\,a\,\text{Tan}[c+d\,x])^{3/2}}+\frac{(151\,A+41\,i\,B)\sqrt{\text{Cot}[c+d\,x]}}{60\,a^2\,d\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}-\frac{(317\,A+67\,i\,B)\sqrt{\text{Cot}[c+d\,x]}\sqrt{a+i\,a\,\text{Tan}[c+d\,x]}}{60\,a^3\,d}$$

Result (type 3, 529 leaves):

$$\left((A-iB)\,e^{-i(-2c+dx)}\sqrt{e^{idx}}\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\sqrt{\frac{i\left(1+e^{2i(c+dx)}\right)}{-1+e^{2i(c+dx)}}}\,\text{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]\text{Sec}[c+dx]^{3/2}\right.$$

$$\left.(\text{Cos}[dx]+i\,\text{Sin}[dx])^{5/2}\,(A+B\,\text{Tan}[c+dx])\right)\Big/\left(4\sqrt{2}\,d\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}}\sqrt{\text{Cot}[c+dx]}\,\text{Sec}[c+dx]^2\,(\text{Cos}[dx]+i\,\text{Sin}[dx])^3$$

$$\left((13A+8iB)\,\text{Cos}[4dx]\left(\frac{\text{Cos}[c]}{60}-\frac{1}{60}i\,\text{Sin}[c]\right)+(97A+32iB)\,\text{Cos}[2dx]\left(\frac{\text{Cos}[c]}{60}+\frac{1}{60}i\,\text{Sin}[c]\right)+(463A+83iB)\right.$$

$$\left(-\frac{1}{120}\text{Cos}[3c]-\frac{1}{120}i\,\text{Sin}[3c]\right)+(A+iB)\,\text{Cos}[6dx]\left(\frac{1}{40}\text{Cos}[3c]-\frac{1}{40}i\,\text{Sin}[3c]\right)+(-97iA+32B)\left(\frac{\text{Cos}[c]}{60}+\frac{1}{60}i\,\text{Sin}[c]\right)\text{Sin}[2dx]+$$

$$\left.(-13iA+8B)\left(\frac{\text{Cos}[c]}{60}-\frac{1}{60}i\,\text{Sin}[c]\right)\text{Sin}[4dx]+(-iA+B)\left(\frac{1}{40}\text{Cos}[3c]-\frac{1}{40}i\,\text{Sin}[3c]\right)\text{Sin}[6dx]\right)(A+B\,\text{Tan}[c+dx])$$

- **Problem 563: Result more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+dx]}\,(A+B\,\text{Tan}[c+dx])}{(a+i\,a\,\text{Tan}[c+dx])^{5/2}}\,dx$$

Optimal (type 3, 214 leaves, 7 steps):

$$\frac{\left(\frac{1}{8}-\frac{i}{8}\right)(A-iB)\,\text{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+i\,a\,\text{Tan}[c+dx]}}\right]\sqrt{\text{Cot}[c+dx]}\sqrt{\text{Tan}[c+dx]}}{a^{5/2}\,d}+\frac{A+iB}{5d\sqrt{\text{Cot}[c+dx]}\,(a+i\,a\,\text{Tan}[c+dx])^{5/2}}+$$

$$\frac{13A+3iB}{30ad\sqrt{\text{Cot}[c+dx]}\,(a+i\,a\,\text{Tan}[c+dx])^{3/2}}+\frac{67A-3iB}{60a^2d\sqrt{\text{Cot}[c+dx]}\sqrt{a+i\,a\,\text{Tan}[c+dx]}}$$

Result (type 3, 531 leaves):

$$-\left(i\,(A-i\,B)\,e^{-i\,(-2c+d x)}\sqrt{e^{i\,d x}}\sqrt{-1+e^{2i\,(c+d x)}}\sqrt{\frac{e^{i\,(c+d x)}}{1+e^{2i\,(c+d x)}}}\sqrt{\frac{i\left(1+e^{2i\,(c+d x)}\right)}{-1+e^{2i\,(c+d x)}}}\,\mathrm{Log}\left[e^{i\,(c+d x)}+\sqrt{-1+e^{2i\,(c+d x)}}\right]\mathrm{Sec}[c+d x]^{3/2}\right.$$

$$\left.(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d x])\right)\Big/\left(4\sqrt{2}\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+i\,a\,\mathrm{Tan}[c+d x])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+i\,a\,\mathrm{Tan}[c+d x])^{5/2}}\sqrt{\mathrm{Cot}[c+d x]}\,\mathrm{Sec}[c+d x]^2\,(\mathrm{Cos}[d x]+i\,\mathrm{Sin}[d x])^3$$

$$\left((32\,i\,A+3\,B)\,\mathrm{Cos}[2\,d x]\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}\,i\,\mathrm{Sin}[c]\right)+(8\,A+3\,i\,B)\,\mathrm{Cos}[4\,d x]\left(\frac{1}{60}\,i\,\mathrm{Cos}[c]+\frac{\mathrm{Sin}[c]}{60}\right)+(-83\,i\,A+3\,B)\right.$$

$$\left(\frac{1}{120}\,\mathrm{Cos}[3\,c]+\frac{1}{120}\,i\,\mathrm{Sin}[3\,c]\right)+(A+i\,B)\,\mathrm{Cos}[6\,d x]\left(\frac{1}{40}\,i\,\mathrm{Cos}[3\,c]+\frac{1}{40}\,\mathrm{Sin}[3\,c]\right)+(32\,A-3\,i\,B)\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}\,i\,\mathrm{Sin}[c]\right)\mathrm{Sin}[2\,d x]+$$

$$\left.(8\,A+3\,i\,B)\left(\frac{\mathrm{Cos}[c]}{60}-\frac{1}{60}\,i\,\mathrm{Sin}[c]\right)\mathrm{Sin}[4\,d x]+(A+i\,B)\left(\frac{1}{40}\,\mathrm{Cos}[3\,c]-\frac{1}{40}\,i\,\mathrm{Sin}[3\,c]\right)\mathrm{Sin}[6\,d x]\right)(A+B\,\mathrm{Tan}[c+d x])$$

- **Problem 564: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d x]}{\sqrt{\mathrm{Cot}[c+d x]}\,(a+i\,a\,\mathrm{Tan}[c+d x])^{5/2}}\,dx$$

Optimal (type 3, 216 leaves, 7 steps):

$$-\frac{\left(\frac{1}{8}+\frac{i}{8}\right)(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{a^{5/2}\,d}+\frac{i\,A-B}{5\,d\,\sqrt{\mathrm{Cot}[c+d x]}\,(a+i\,a\,\mathrm{Tan}[c+d x])^{5/2}}+$$

$$\frac{3\,i\,A+7\,B}{30\,a\,d\,\sqrt{\mathrm{Cot}[c+d x]}\,(a+i\,a\,\mathrm{Tan}[c+d x])^{3/2}}-\frac{3\,i\,A-13\,B}{60\,a^2\,d\,\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{a+i\,a\,\mathrm{Tan}[c+d x]}}$$

Result (type 3, 529 leaves):

$$-\left((A-iB)\,e^{-i(-2c+dx)}\sqrt{e^{idx}}\sqrt{-1+e^{2i(c+dx)}}\sqrt{\frac{e^{i(c+dx)}}{1+e^{2i(c+dx)}}}\sqrt{\frac{i\left(1+e^{2i(c+dx)}\right)}{-1+e^{2i(c+dx)}}}\,\mathrm{Log}\left[e^{i(c+dx)}+\sqrt{-1+e^{2i(c+dx)}}\right]\mathrm{Sec}[c+dx]^{3/2}\right.$$

$$\left.(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^{5/2}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(4\sqrt{2}\,d\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}}\sqrt{\mathrm{Cot}[c+dx]}\,\mathrm{Sec}[c+dx]^2\,(\mathrm{Cos}[dx]+i\,\mathrm{Sin}[dx])^3$$

$$\left((3A-2iB)\,\mathrm{Cos}[4dx]\left(-\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}i\,\mathrm{Sin}[c]\right)+(3A+8iB)\,\mathrm{Cos}[2dx]\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}i\,\mathrm{Sin}[c]\right)+(3A-17iB)\right.$$

$$\left(\frac{1}{120}\mathrm{Cos}[3c]+\frac{1}{120}i\,\mathrm{Sin}[3c]\right)+(A+iB)\,\mathrm{Cos}[6dx]\left(-\frac{1}{40}\mathrm{Cos}[3c]+\frac{1}{40}i\,\mathrm{Sin}[3c]\right)+(-3iA+8B)\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}i\,\mathrm{Sin}[c]\right)\mathrm{Sin}[2dx]+$$

$$\left.(3iA+2B)\left(\frac{\mathrm{Cos}[c]}{60}-\frac{1}{60}i\,\mathrm{Sin}[c]\right)\mathrm{Sin}[4dx]+(A+iB)\left(\frac{1}{40}i\,\mathrm{Cos}[3c]+\frac{1}{40}\mathrm{Sin}[3c]\right)\mathrm{Sin}[6dx]\right)(A+B\,\mathrm{Tan}[c+dx])$$

- **Problem 565: Result more than twice size of optimal antiderivative.**

$$\int \frac{A+B\,\mathrm{Tan}[c+dx]}{\mathrm{Cot}[c+dx]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}}\,dx$$

Optimal (type 3, 214 leaves, 7 steps):

$$\frac{\left(\frac{1}{8}+\frac{i}{8}\right)(iA+B)\,\mathrm{ArcTanh}\left[\frac{(1+i)\sqrt{a}\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}\right]\sqrt{\mathrm{Cot}[c+dx]}\sqrt{\mathrm{Tan}[c+dx]}}{a^{5/2}\,d}+\frac{iA-B}{5\,d\,\mathrm{Cot}[c+dx]^{3/2}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{5/2}}+$$

$$\frac{A+11iB}{30\,a\,d\sqrt{\mathrm{Cot}[c+dx]}\,(a+i\,a\,\mathrm{Tan}[c+dx])^{3/2}}+\frac{13A-37iB}{60\,a^2\,d\sqrt{\mathrm{Cot}[c+dx]}\sqrt{a+i\,a\,\mathrm{Tan}[c+dx]}}$$

Result (type 3, 529 leaves):

$$\left((\mathrm{i}\,A+B)\,e^{-\mathrm{i}\,(-2c+dx)}\sqrt{e^{\mathrm{i}\,dx}}\,\sqrt{-1+e^{2\,\mathrm{i}\,(c+dx)}}\,\sqrt{\frac{e^{\mathrm{i}\,(c+dx)}}{1+e^{2\,\mathrm{i}\,(c+dx)}}}\,\sqrt{\frac{\mathrm{i}\left(1+e^{2\,\mathrm{i}\,(c+dx)}\right)}{-1+e^{2\,\mathrm{i}\,(c+dx)}}}\,\mathrm{Log}\left[e^{\mathrm{i}\,(c+dx)}+\sqrt{-1+e^{2\,\mathrm{i}\,(c+dx)}}\right]\mathrm{Sec}[c+dx]^{3/2}\right.$$

$$\left.(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^{5/2}\,(A+B\,\mathrm{Tan}[c+dx])\right)\Big/\left(4\sqrt{2}\,d\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx])^{5/2}\right)+$$

$$\frac{1}{d\,(A\,\mathrm{Cos}[c+dx]+B\,\mathrm{Sin}[c+dx])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx])^{5/2}}\sqrt{\mathrm{Cot}[c+dx]}\,\mathrm{Sec}[c+dx]^2\,(\mathrm{Cos}[dx]+\mathrm{i}\,\mathrm{Sin}[dx])^3$$

$$\left((8\,\mathrm{i}\,A+17\,B)\,\mathrm{Cos}[2dx]\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}\,\mathrm{i}\,\mathrm{Sin}[c]\right)+(2A+7\,\mathrm{i}\,B)\,\mathrm{Cos}[4dx]\left(\frac{1}{60}\,\mathrm{i}\,\mathrm{Cos}[c]+\frac{\mathrm{Sin}[c]}{60}\right)+(-\mathrm{i}\,A+B)\,\mathrm{Cos}[6dx]\right.$$

$$\left(\frac{1}{40}\mathrm{Cos}[3c]-\frac{1}{40}\,\mathrm{i}\,\mathrm{Sin}[3c]\right)+(17A-23\,\mathrm{i}\,B)\left(-\frac{1}{120}\,\mathrm{i}\,\mathrm{Cos}[3c]+\frac{1}{120}\mathrm{Sin}[3c]\right)+(8A-17\,\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[c]}{60}+\frac{1}{60}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\mathrm{Sin}[2dx]+$$

$$\left.(2A+7\,\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[c]}{60}-\frac{1}{60}\,\mathrm{i}\,\mathrm{Sin}[c]\right)\mathrm{Sin}[4dx]+(A+\mathrm{i}\,B)\left(-\frac{1}{40}\mathrm{Cos}[3c]+\frac{1}{40}\,\mathrm{i}\,\mathrm{Sin}[3c]\right)\mathrm{Sin}[6dx]\right)(A+B\,\mathrm{Tan}[c+dx])$$

- **Problem 566: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+dx]}{\mathrm{Cot}[c+dx]^{5/2}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx])^{5/2}}\,dx$$

Optimal (type 3, 289 leaves, 11 steps):

$$\frac{2\,(-1)^{1/4}\,B\,\mathrm{ArcTan}\left[\frac{(-1)^{3/4}\sqrt{a}\,\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx]}}\right]\sqrt{\mathrm{Cot}[c+dx]}\,\sqrt{\mathrm{Tan}[c+dx]}}{a^{5/2}\,d}+$$

$$\frac{\left(\frac{1}{8}+\frac{\mathrm{i}}{8}\right)(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{(1+\mathrm{i})\sqrt{a}\,\sqrt{\mathrm{Tan}[c+dx]}}{\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx]}}\right]\sqrt{\mathrm{Cot}[c+dx]}\,\sqrt{\mathrm{Tan}[c+dx]}}{a^{5/2}\,d}+\frac{\mathrm{i}\,A-B}{5\,d\,\mathrm{Cot}[c+dx]^{5/2}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx])^{5/2}}+$$

$$\frac{A+3\,\mathrm{i}\,B}{6\,a\,d\,\mathrm{Cot}[c+dx]^{3/2}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx])^{3/2}}-\frac{\mathrm{i}\,A-7\,B}{4\,a^2\,d\,\sqrt{\mathrm{Cot}[c+dx]}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[c+dx]}}$$

Result (type 3, 646 leaves):

$$\frac{1}{4\sqrt{2}\,d\,(A\,Cos[c+d\,x]+B\,Sin[c+d\,x])\,(a+i\,a\,Tan[c+d\,x])^{5/2}}$$

$$e^{-i\,(-2\,c+d\,x)}\sqrt{e^{i\,d\,x}}\,\sqrt{-1+e^{2\,i\,(c+d\,x)}}\,\sqrt{\frac{e^{i\,(c+d\,x)}}{1+e^{2\,i\,(c+d\,x)}}}\,\sqrt{\frac{i\,\left(1+e^{2\,i\,(c+d\,x)}\right)}{-1+e^{2\,i\,(c+d\,x)}}}\,\left((A-i\,B)\,Log\left[e^{i\,(c+d\,x)}+\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]+\right.$$

$$\left.2\,i\,\sqrt{2}\,B\left(Log\left[1-3\,e^{2\,i\,(c+d\,x)}-2\,\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]-Log\left[1-3\,e^{2\,i\,(c+d\,x)}+2\,\sqrt{2}\,e^{i\,(c+d\,x)}\sqrt{-1+e^{2\,i\,(c+d\,x)}}\right]\right)\right)$$

$$Sec[c+d\,x]^{3/2}\,(Cos[d\,x]+i\,Sin[d\,x])^{5/2}\,(A+B\,Tan[c+d\,x])+\frac{1}{d\,(A\,Cos[c+d\,x]+B\,Sin[c+d\,x])\,(a+i\,a\,Tan[c+d\,x])^{5/2}}$$

$$\sqrt{Cot[c+d\,x]}\,Sec[c+d\,x]^2\,(Cos[d\,x]+i\,Sin[d\,x])^3\left((7\,A+12\,i\,B)\,Cos[4\,d\,x]\left(-\frac{Cos[c]}{60}+\frac{1}{60}\,i\,Sin[c]\right)+\right.$$

$$(17\,A+72\,i\,B)\,Cos[2\,d\,x]\left(\frac{Cos[c]}{60}+\frac{1}{60}\,i\,Sin[c]\right)+(23\,A+123\,i\,B)\left(-\frac{1}{120}\,Cos[3\,c]-\frac{1}{120}\,i\,Sin[3\,c]\right)+$$

$$(A+i\,B)\,Cos[6\,d\,x]\left(\frac{1}{40}\,Cos[3\,c]-\frac{1}{40}\,i\,Sin[3\,c]\right)+(-17\,i\,A+72\,B)\left(\frac{Cos[c]}{60}+\frac{1}{60}\,i\,Sin[c]\right)Sin[2\,d\,x]+$$

$$\left.(7\,A+12\,i\,B)\left(\frac{1}{60}\,i\,Cos[c]+\frac{Sin[c]}{60}\right)Sin[4\,d\,x]+(-i\,A+B)\left(\frac{1}{40}\,Cos[3\,c]-\frac{1}{40}\,i\,Sin[3\,c]\right)Sin[6\,d\,x]\right)\,(A+B\,Tan[c+d\,x])$$

Problem 567: Unable to integrate problem.

$$\int Cot[c+d\,x]^m\,(a+i\,a\,Tan[c+d\,x])^n\,(A+B\,Tan[c+d\,x])\,dx$$

Optimal (type 6, 179 leaves, 8 steps):

$$\frac{1}{d\,(1-m)}(A-i\,B)\,AppellF1[1-m,\,1-n,\,1,\,2-m,\,-i\,Tan[c+d\,x],\,i\,Tan[c+d\,x]]\,Cot[c+d\,x]^{-1+m}\,(1+i\,Tan[c+d\,x])^{-n}\,(a+i\,a\,Tan[c+d\,x])^n+$$

$$\frac{1}{d\,(1-m)}i\,B\,Cot[c+d\,x]^{-1+m}\,Hypergeometric2F1[1-m,\,1-n,\,2-m,\,-i\,Tan[c+d\,x]]\,(1+i\,Tan[c+d\,x])^{-n}\,(a+i\,a\,Tan[c+d\,x])^n$$

Result (type 8, 36 leaves):

$$\int Cot[c+d\,x]^m\,(a+i\,a\,Tan[c+d\,x])^n\,(A+B\,Tan[c+d\,x])\,dx$$

Problem 568: Unable to integrate problem.

$$\int Cot[c+d\,x]^{5/2}\,(a+i\,a\,Tan[c+d\,x])^n\,(A+B\,Tan[c+d\,x])\,dx$$

Optimal (type 6, 247 leaves, 11 steps):

$$-\frac{2\,(3\,B+2\,i\,A\,n)\,\sqrt{\text{Cot}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{3\,d}-\frac{2\,A\,\text{Cot}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{3\,d}-\frac{1}{d\,\sqrt{\text{Cot}[c+d\,x]}}$$

$$2\,(A-i\,B)\,\text{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n-\frac{1}{3\,d\,\sqrt{\text{Cot}[c+d\,x]}}$$

$$2\,(1-2\,n)\,(3\,i\,B-2\,A\,n)\,\text{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves):

$$\int \text{Cot}[c+d\,x]^{5/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

- **Problem 569: Unable to integrate problem.**

$$\int \text{Cot}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 194 leaves, 10 steps):

$$-\frac{2\,A\,\sqrt{\text{Cot}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d}+\frac{1}{d\,\sqrt{\text{Cot}[c+d\,x]}}$$

$$2\,(i\,A+B)\,\text{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n-$$

$$\frac{1}{d\,\sqrt{\text{Cot}[c+d\,x]}}2\,i\,A\,(1-2\,n)\,\text{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n$$

Result (type 8, 38 leaves):

$$\int \text{Cot}[c+d\,x]^{3/2}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

- **Problem 570: Unable to integrate problem.**

$$\int \sqrt{\text{Cot}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 158 leaves, 9 steps):

$$\frac{1}{d\,\sqrt{\text{Cot}[c+d\,x]}}2\,(A-i\,B)\,\text{AppellF1}\left[\frac{1}{2},1-n,1,\frac{3}{2},-i\,\text{Tan}[c+d\,x],i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n+$$

$$\frac{2\,i\,B\,\text{Hypergeometric2F1}\left[\frac{1}{2},1-n,\frac{3}{2},-i\,\text{Tan}[c+d\,x]\right]\,(1+i\,\text{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\text{Tan}[c+d\,x])^n}{d\,\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 8, 38 leaves):

$$\int \sqrt{\text{Cot}[c+d\,x]}\,(a+i\,a\,\text{Tan}[c+d\,x])^n\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Problem 571: Unable to integrate problem.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^n (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Cot}[c+d x]}} \, dx$$

Optimal (type 6, 215 leaves, 10 steps):

$$\frac{2 B (a+i a \operatorname{Tan}[c+d x])^n}{d (1+2 n) \sqrt{\operatorname{Cot}[c+d x]}} - \frac{1}{d \sqrt{\operatorname{Cot}[c+d x]}}$$
$$2 (i A+B) \operatorname{AppellF1}\left[\frac{1}{2}, 1-n, 1, \frac{3}{2}, -i \operatorname{Tan}[c+d x], i \operatorname{Tan}[c+d x]\right] (1+i \operatorname{Tan}[c+d x])^{-n} (a+i a \operatorname{Tan}[c+d x])^n + \frac{1}{d (1+2 n) \sqrt{\operatorname{Cot}[c+d x]}}$$
$$2 (2 B n+i A (1+2 n)) \operatorname{Hypergeometric2F1}\left[\frac{1}{2}, 1-n, \frac{3}{2}, -i \operatorname{Tan}[c+d x]\right] (1+i \operatorname{Tan}[c+d x])^{-n} (a+i a \operatorname{Tan}[c+d x])^n$$

Result (type 8, 38 leaves):

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^n (A+B \operatorname{Tan}[c+d x])}{\sqrt{\operatorname{Cot}[c+d x]}} \, dx$$

Problem 572: Unable to integrate problem.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^n (A+B \operatorname{Tan}[c+d x])}{\operatorname{Cot}[c+d x]^{3/2}} \, dx$$

Optimal (type 6, 291 leaves, 11 steps):

$$\frac{2 B (a+i a \operatorname{Tan}[c+d x])^n}{d (3+2 n) \operatorname{Cot}[c+d x]^{3/2}} - \frac{2 (2 i B n - A (3+2 n)) (a+i a \operatorname{Tan}[c+d x])^n}{d (1+2 n) (3+2 n) \sqrt{\operatorname{Cot}[c+d x]}} - \frac{1}{d \sqrt{\operatorname{Cot}[c+d x]}}$$
$$2 (A-i B) \operatorname{AppellF1}\left[\frac{1}{2}, 1-n, 1, \frac{3}{2}, -i \operatorname{Tan}[c+d x], i \operatorname{Tan}[c+d x]\right] (1+i \operatorname{Tan}[c+d x])^{-n} (a+i a \operatorname{Tan}[c+d x])^n +$$
$$\left(2 \left(2 A n (3+2 n) - i B \left(3+6 n+4 n^2\right)\right) \operatorname{Hypergeometric2F1}\left[\frac{1}{2}, 1-n, \frac{3}{2}, -i \operatorname{Tan}[c+d x]\right] (1+i \operatorname{Tan}[c+d x])^{-n} (a+i a \operatorname{Tan}[c+d x])^n\right) \Big/$$
$$\left(d (1+2 n) (3+2 n) \sqrt{\operatorname{Cot}[c+d x]}\right)$$

Result (type 8, 38 leaves):

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^n (A+B \operatorname{Tan}[c+d x])}{\operatorname{Cot}[c+d x]^{3/2}} \, dx$$

Problem 573: Unable to integrate problem.

$$\int \frac{(a+i a \operatorname{Tan}[c+d x])^n (A+B \operatorname{Tan}[c+d x])}{\operatorname{Cot}[c+d x]^{5/2}} \, dx$$

Optimal (type 6, 383 leaves, 12 steps):

$$\frac{2\,B\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(5+2\,n)\,\mathrm{Cot}[c+d\,x]^{5/2}}-\frac{2\,(2\,i\,B\,n-A\,(5+2\,n))\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(3+2\,n)\,(5+2\,n)\,\mathrm{Cot}[c+d\,x]^{3/2}}-\frac{2\,\left(2\,i\,A\,n\,(5+2\,n)+B\,\left(15+10\,n+4\,n^2\right)\right)\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n}{d\,(1+2\,n)\,(3+2\,n)\,(5+2\,n)\,\sqrt{\mathrm{Cot}[c+d\,x]}}+$$

$$\frac{1}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}2\,(i\,A+B)\,\mathrm{AppellF1}\left[\frac{1}{2},\,1-n,\,1,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x],\,i\,\mathrm{Tan}[c+d\,x]\right]\,(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n-$$

$$\left(2\,\left(4\,B\,n\,\left(9+8\,n+2\,n^2\right)+i\,A\,\left(15+36\,n+32\,n^2+8\,n^3\right)\right)\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2},\,1-n,\,\frac{3}{2},\,-i\,\mathrm{Tan}[c+d\,x]\right]\right.$$

$$\left.(1+i\,\mathrm{Tan}[c+d\,x])^{-n}\,(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\right)\bigg/\left(d\,(1+2\,n)\,(3+2\,n)\,(5+2\,n)\,\sqrt{\mathrm{Cot}[c+d\,x]}\right)$$

Result (type 8, 38 leaves) :

$$\int\frac{(a+i\,a\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Cot}[c+d\,x]^{5/2}}\,dx$$

- **Problem 589: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{a+b\,\mathrm{Tan}[c+d\,x]}\,dx$$

Optimal (type 3, 325 leaves, 17 steps) :

$$\frac{(b\,(A-B)-a\,(A+B))\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)\,d}-\frac{(b\,(A-B)-a\,(A+B))\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)\,d}-$$

$$\frac{2\,b^{5/2}\,(A\,b-a\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{a^{5/2}\,\left(a^2+b^2\right)\,d}+\frac{2\,(A\,b-a\,B)\,\sqrt{\mathrm{Cot}[c+d\,x]}}{a^2\,d}-\frac{2\,A\,\mathrm{Cot}[c+d\,x]^{3/2}}{3\,a\,d}+$$

$$\frac{(a\,(A-B)+b\,(A+B))\,\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)\,d}-\frac{(a\,(A-B)+b\,(A+B))\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)\,d}$$

Result (type 3, 750 leaves) :

$$\frac{\sqrt{\text{Cot}[c+d\,x]}\,\,(B+A\,\text{Cot}[c+d\,x])\,\left(-\frac{2\,(-A\,b+a\,B)}{a^2}-\frac{2\,A\,\text{Cot}[c+d\,x]}{3\,a}\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{d\,(b+a\,\text{Cot}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}-$$

$$\frac{1}{2\,a^2\,d\,(b+a\,\text{Cot}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])}\,(B+A\,\text{Cot}[c+d\,x])\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])$$

$$\left(-\frac{2\,\left(a^2\,A-2\,A\,b^2+2\,a\,b\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]}{\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2\,(a+b\,\text{Tan}[c+d\,x])}-\right.$$

$$\left(a^{3/2}\,A\,\text{Cos}[2\,(c+d\,x)]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\left(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+\right.$$

$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]\right)\Big/$$

$$\left.\left(2\,\sqrt{b}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d\,x]^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])\right)\right)-\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])}$$

$$a^2\,B\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\right)$$

- **Problem 594: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])}\,dx$$

Optimal (type 3, 325 leaves, 17 steps) :

$$-\frac{(a\,(A-B)+b\,(A+B))\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)\,d}+\frac{(a\,(A-B)+b\,(A+B))\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)\,d}+$$

$$\frac{2\,a^{5/2}\,(A\,b-a\,B)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{b^{5/2}\,\left(a^2+b^2\right)\,d}+\frac{2\,B}{3\,b\,d\,\text{Cot}[c+d\,x]^{3/2}}+\frac{2\,(A\,b-a\,B)}{b^2\,d\,\sqrt{\text{Cot}[c+d\,x]}}+$$

$$\frac{(b\,(A-B)-a\,(A+B))\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)\,d}-\frac{(b\,(A-B)-a\,(A+B))\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)\,d}$$

Result (type 3, 779 leaves) :

$$\left(\sqrt{\text{Cot}[c+d\,x]}\,\left(B+A\,\text{Cot}[c+d\,x]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)\right.$$

$$\left.\left(-\frac{2\,B}{3\,b}+\frac{2\,B\,\text{Sec}[c+d\,x]^2}{3\,b}+\frac{2\,\text{Sec}[c+d\,x]\,\left(A\,b\,\text{Sin}[c+d\,x]-a\,B\,\text{Sin}[c+d\,x]\right)}{b^2}\right)\right)\Big/\left(d\,\left(b+a\,\text{Cot}[c+d\,x]\right)\,\left(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]\right)\right)+$$

$$\frac{1}{2\,b^2\,d\,\left(b+a\,\text{Cot}[c+d\,x]\right)\,\left(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]\right)}\left(B+A\,\text{Cot}[c+d\,x]\right)\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)$$

$$\left(-\frac{2\,\left(-2\,a\,A\,b+2\,a^2\,B-b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,\left(b+a\,\text{Cot}[c+d\,x]\right)\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]}{\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2\,\left(a+b\,\text{Tan}[c+d\,x]\right)}-\right.$$

$$\left(b^{3/2}\,B\,\text{Cos}[2\,(c+d\,x)]\,\left(b+a\,\text{Cot}[c+d\,x]\right)\,\text{Csc}[c+d\,x]^3\,\left(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\right.\right.$$

$$\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+\right.$$

$$\left.\left.\left.(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]\right)\Big/$$

$$\left(2\,\sqrt{a}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d\,x]^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)\right)+\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,\left(a+b\,\text{Tan}[c+d\,x]\right)}$$

$$A\,b^2\,\left(b+a\,\text{Cot}[c+d\,x]\right)\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\right)$$

Problem 595: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Cot}[c+d x]^{3/2} (A+B \text{Tan}[c+d x])}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 438 leaves, 17 steps):

$$-\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+$$
$$\frac{b^{3/2} \left(7 a^2 A b+3 A b^3-5 a^3 B-a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{a^{5/2} \left(a^2+b^2\right)^2 d}-\frac{\left(2 a^2 A+3 A b^2-a b B\right) \sqrt{\text{Cot}[c+d x]}}{a^2 \left(a^2+b^2\right) d}+$$
$$\frac{b (A b-a B) \text{Cot}[c+d x]^{3/2}}{a \left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])}+\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$
$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}$$

Result (type 3, 859 leaves):

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 \left(-\frac{2 A}{a^2}+\frac{-A\,b^3\,\text{Sin}[c+d x]+a\,b^2\,B\,\text{Sin}[c+d x]}{a^2\ (a-\mathrm{i}\,b)\ (a+\mathrm{i}\,b)\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\right)\Big/$$

$$\left(d\ (b+a\,\text{Cot}[c+d x])^2\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)-\Bigg((B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2$$

$$\left(-\left(2\left(3 a^2 A\,b+3 A\,b^3-a^3 B-a\,b^2 B\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3\ \text{Sec}[c+d x]\right)\Big/\right.$$

$$\left(\sqrt{a}\ \sqrt{b}\ \left(1+\text{Cot}[c+d x]^2\right)^2\ (a+b\,\text{Tan}[c+d x])\right)-\Big(\left(a^2 A\,b-a^3 B\right)\text{Cos}[2\ (c+d x)]\ (b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3$$

$$\Big(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \sqrt{a}\ \sqrt{b}\ \Big(-2\ (a-b)\ \text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\ (a-b)\ \text{ArcTan}\Big[$$

$$1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\Big]+(a+b)\ \left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Big)$$

$$\text{Sec}[c+d x]\Big)\Big/\left(2\sqrt{a}\ \sqrt{b}\ \left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-$$

$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}\left(a^3 A+a^2 b\,B\right)(b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^2$$

$$\Big(-8\sqrt{a}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \Big(-2\ (a+b)\ \text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\ (a+b)\ \text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]-$$

$$(a-b)\ \left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Big)\ \text{Sec}[c+d x]^2\ \text{Sin}[2\ (c+d x)]\right)\Bigg)\Big/$$

$$\left(2 a^2\ (a-\mathrm{i}\,b)\ (a+\mathrm{i}\,b)\ d\ (b+a\,\text{Cot}[c+d x])^2\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 596: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+d x]}\ (A+B\,\text{Tan}[c+d x])}{(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 392 leaves, 16 steps):

$$-\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$

$$\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-\frac{\sqrt{b}\,\left(5\,a^2\,A\,b+A\,b^3-3\,a^3\,B+a\,b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{a^{3/2}\,\left(a^2+b^2\right)^2\,d}+$$

$$\frac{b\,(A\,b-a\,B)\,\sqrt{\text{Cot}[c+d\,x]}}{a\,\left(a^2+b^2\right)\,d\,(b+a\,\text{Cot}[c+d\,x])}-\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}+$$

$$\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}$$

Result (type 3, 808 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\ \left(A\,b^2\,\text{Sin}[c+d x]-a\,b\,B\,\text{Sin}[c+d x]\right)\right)\Big/$$

$$\left(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(b+a\,\text{Cot}[c+d x])^2\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+\Bigg((B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]$$

$$(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(-\frac{2\left(a^2 A+A\,b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3\,\text{Sec}[c+d x]}{\sqrt{a}\,\sqrt{b}\left(1+\text{Cot}[c+d x]^2\right)^2(a+b\,\text{Tan}[c+d x])}-\right.$$

$$\Bigg(\left(a^2 A+a\,b\,B\right)\text{Cos}[2\,(c+d x)]\ (b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\right.$$

$$\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\Big(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+$$

$$(a+b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Big)\ \text{Sec}[c+d x]\Bigg)\Big/$$

$$\left(2\,\sqrt{a}\,\sqrt{b}\left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}$$

$$\left(-a\,A\,b+a^2 B\right)(b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^2$$

$$\Bigg(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\Big(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]-$$

$$(a-b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Bigg)\ \text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\Bigg)\Bigg)\Big/$$

$$\left(2\,a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,d\,(b+a\,\text{Cot}[c+d x])^2\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 597: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\sqrt{\text{Cot}[c+d x]}\ (a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 390 leaves, 16 steps) :

$$\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(3 a^2 A b-A b^3-a^3 B+3 a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{\sqrt{a} \sqrt{b} \left(a^2+b^2\right)^2 d}-$$

$$\frac{(A b-a B) \sqrt{\text{Cot}[c+d x]}}{\left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])}-\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}+$$

$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}$$

Result (type 3, 700 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]} (B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (-A b \text{Sin}[c+d x]+a B \text{Sin}[c+d x])\right) \Big/ \left((a-i b) (a+i b) d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)+$$

$$\Bigg((B+A \text{Cot}[c+d x]) \text{Csc}[c+d x] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \Bigg(-\Bigg(\Bigg((A b-a B) \text{Cos}[2 (c+d x)] (b+a \text{Cot}[c+d x]) \text{Csc}[c+d x]^3$$

$$\left(-4 \left(a^2-b^2\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2} \sqrt{a} \sqrt{b} \left(-2 (a-b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]+2 (a-b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]+(a+b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right)$$

$$\text{Sec}[c+d x]\Bigg) \Big/ \left(2 \sqrt{a} \sqrt{b} \left(a^2+b^2\right) \left(-1+\text{Cot}[c+d x]^2\right) \left(1+\text{Cot}[c+d x]^2\right) (a+b \text{Tan}[c+d x])\right)\Bigg)-$$

$$\frac{1}{4 \left(a^2+b^2\right) \left(1+\text{Cot}[c+d x]^2\right) (a+b \text{Tan}[c+d x])} (a A+b B) (b+a \text{Cot}[c+d x]) \text{Csc}[c+d x]^2$$

$$\left(-8 \sqrt{a} \sqrt{b} \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2} \left(-2 (a+b) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]+2 (a+b) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]-(a-b) \left(\text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right) \text{Sec}[c+d x]^2 \text{Sin}[2 (c+d x)]\Bigg)\Bigg) \Big/$$

$$\left(2 (a-i b) (a+i b) d (b+a \text{Cot}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

- **Problem 598: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^2}\,dx$$

Optimal (type 3, 392 leaves, 16 steps):

$$\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\mathrm{ArcTan}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-$$
$$\frac{\left(2\,a\,b\,(A-B)-a^2\,(A+B)+b^2\,(A+B)\right)\,\mathrm{ArcTan}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right]}{\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-\frac{\sqrt{a}\,\left(a^2\,A\,b-3\,A\,b^3+a^3\,B+5\,a\,b^2\,B\right)\,\mathrm{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{b}}\right]}{b^{3/2}\,\left(a^2+b^2\right)^2\,d}+$$
$$\frac{a\,(A\,b-a\,B)\,\sqrt{\mathrm{Cot}[c+d\,x]}}{b\,\left(a^2+b^2\right)\,d\,(b+a\,\mathrm{Cot}[c+d\,x])}+\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\mathrm{Log}\left[1-\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}-$$
$$\frac{\left(a^2\,(A-B)-b^2\,(A-B)+2\,a\,b\,(A+B)\right)\,\mathrm{Log}\left[1+\sqrt{2}\,\sqrt{\mathrm{Cot}[c+d\,x]}+\mathrm{Cot}[c+d\,x]\right]}{2\,\sqrt{2}\,\left(a^2+b^2\right)^2\,d}$$

Result (type 3, 810 leaves):

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])\ \left(a A b\,\text{Sin}[c+d x]-a^2 B\,\text{Sin}[c+d x]\right)\right)\Big/$$

$$\left((a-\mathrm{i}\,b)\ (a+\mathrm{i}\,b)\ b\,d\ (b+a\,\text{Cot}[c+d x])^2\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+\Bigg((B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]$$

$$(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\left(-\frac{2\left(a^2 B+b^2 B\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3\ \text{Sec}[c+d x]}{\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d x]^2\right)^2\ (a+b\,\text{Tan}[c+d x])}-\right.$$

$$\Bigg(\left(-a A b-b^2 B\right)\text{Cos}[2\ (c+d x)]\ (b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^3\ \Bigg(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+$$

$$\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\Big(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+$$

$$(a+b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Bigg)\ \text{Sec}[c+d x]\Bigg)\Big/$$

$$\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}$$

$$\left(A b^2-a b B\right)(b+a\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^2$$

$$\Bigg(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\Big(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]-$$

$$\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Bigg)\ \text{Sec}[c+d x]^2\ \text{Sin}[2\ (c+d x)]\right)\Bigg)\Big/$$

$$\left(2\,(a-\mathrm{i}\,b)\ (a+\mathrm{i}\,b)\ b\,d\ (b+a\,\text{Cot}[c+d x])^2\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 599: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\text{Cot}[c+d x]^{5/2}\ (a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 437 leaves, 17 steps):

$$-\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}+\frac{\left(a^2 (A-B)-b^2 (A-B)+2 a b (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{a^{3/2} \left(a^2 A b+5 A b^3-3 a^3 B-7 a b^2 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{b^{5/2} \left(a^2+b^2\right)^2 d}-\frac{a A b-3 a^2 B-2 b^2 B}{b^2 \left(a^2+b^2\right) d \sqrt{\text{Cot}[c+d x]}}+$$

$$\frac{a (A b-a B)}{b \left(a^2+b^2\right) d \sqrt{\text{Cot}[c+d x]} (b+a \text{Cot}[c+d x])}+\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}-$$

$$\frac{\left(2 a b (A-B)-a^2 (A+B)+b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^2 d}$$

Result (type 3, 856 leaves) :

$$\left(\sqrt{\text{Cot}[c+d\,x]}\,(B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(\frac{-a^2\,A\,b\,\text{Sin}[c+d\,x]+a^3\,B\,\text{Sin}[c+d\,x]}{b^2\,\left(a^2+b^2\right)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}+\frac{2\,B\,\text{Tan}[c+d\,x]}{b^2}\right)\right)\Big/$$

$$\left(d\,(b+a\,\text{Cot}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)-\left((B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right.$$

$$\left(-\left(2\,\left(-a^2\,A\,b-A\,b^3+3\,a^3\,B+3\,a\,b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\right)\Big/\right.$$

$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2\,(a+b\,\text{Tan}[c+d\,x])\right)-\left(\left(A\,b^3-a\,b^2\,B\right)\,\text{Cos}[2\,(c+d\,x)]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\right.$$

$$\left(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.\left.\left.1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)$$

$$\left.\text{Sec}[c+d\,x]\right)\Big/\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d\,x]^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])}\,\left(a\,A\,b^2+b^3\,B\right)\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$

$$\left(2\,(a-i\,b)\,(a+i\,b)\,b^2\,d\,(b+a\,\text{Cot}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 600: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 601 leaves, 18 steps):

$$-\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{b^{3/2} \left(63 a^4 A b+46 a^2 A b^3+15 A b^5-35 a^5 B-6 a^3 b^2 B-3 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 a^{7/2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(8 a^4 A+31 a^2 A b^2+15 A b^4-11 a^3 b B-3 a b^3 B\right) \sqrt{\text{Cot}[c+d x]}}{4 a^3 \left(a^2+b^2\right)^2 d}+$$

$$\frac{b (A b-a B) \text{Cot}[c+d x]^{5/2}}{2 a \left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])^2}+\frac{b \left(13 a^2 A b+5 A b^3-9 a^3 B-a b^2 B\right) \text{Cot}[c+d x]^{3/2}}{4 a^2 \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 1038 leaves) :

$$\left(\sqrt{\text{Cot}[c+d\,x]}\ (B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$
$$\left(-\frac{4\,a^4\,A+8\,a^2\,A\,b^2+5\,A\,b^4-a\,b^3\,B}{2\,a^3\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{b^3\,(-A\,b+a\,B)}{2\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\right.$$
$$\left.\left.\frac{-17\,a^2\,A\,b^3\,\text{Sin}[c+d\,x]-5\,A\,b^5\,\text{Sin}[c+d\,x]+13\,a^3\,b^2\,B\,\text{Sin}[c+d\,x]+a\,b^4\,B\,\text{Sin}[c+d\,x]}{4\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)\right)\Big/$$
$$\left(d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)-\left((B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$
$$\left(-\left(2\left(16\,a^4\,A\,b+31\,a^2\,A\,b^3+15\,A\,b^5-4\,a^5\,B-7\,a^3\,b^2\,B-3\,a\,b^4\,B\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\right)\Big/\right.$$
$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2(a+b\,\text{Tan}[c+d\,x])\right)-\left(\left(8\,a^4\,A\,b-4\,a^5\,B+4\,a^3\,b^2\,B\right)\text{Cos}[2\,(c+d\,x)]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\right.$$
$$\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[\right.\right.\right.$$
$$\left.\left.\left.1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+(a+b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)$$
$$\left.\text{Sec}[c+d\,x]\right)\Big/\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\left(-1+\text{Cot}[c+d\,x]^2\right)\left(1+\text{Cot}[c+d\,x]^2\right)(a+b\,\text{Tan}[c+d\,x])\right)-$$
$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d\,x]^2\right)(a+b\,\text{Tan}[c+d\,x])}\left(4\,a^5\,A-4\,a^3\,A\,b^2+8\,a^4\,b\,B\right)(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$
$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$
$$\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$
$$\left(8\,a^3\,(a-i\,b)^2\,(a+i\,b)^2\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 601: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\sqrt{\text{Cot}[c+d\,x]}\ (A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 534 leaves, 17 steps):

$$-\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\sqrt{b} \left(35 a^4 A b+6 a^2 A b^3+3 A b^5-15 a^5 B+18 a^3 b^2 B+a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 a^{5/2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{b (A b-a B) \text{Cot}[c+d x]^{3/2}}{2 a \left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])^2}+\frac{b \left(11 a^2 A b+3 A b^3-7 a^3 B+a b^2 B\right) \sqrt{\text{Cot}[c+d x]}}{4 a^2 \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 1004 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^2\right.$$

$$(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\left(-\frac{b^2\,(-A b+a B)}{2 a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{b^2\,(-A b+a B)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\right.$$

$$\left.\left.\frac{13 a^2 A b^2\,\text{Sin}[c+d x]+A b^4\,\text{Sin}[c+d x]-9 a^3 b B\,\text{Sin}[c+d x]+3 a b^3 B\,\text{Sin}[c+d x]}{4 a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\right)\Big/$$

$$\left(d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+\left((B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right.$$

$$\left(-\left(2\left(4 a^4 A+7 a^2 A b^2+3 A b^4+a^3 b B+a b^3 B\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\,\text{Sec}[c+d x]\right)\Big/\right.$$

$$\left(\sqrt{a}\ \sqrt{b}\ \left(1+\text{Cot}[c+d x]^2\right)^2\,(a+b\,\text{Tan}[c+d x])\right)-\left(\left(4 a^4 A-4 a^2 A b^2+8 a^3 b B\right)\text{Cos}[2\,(c+d x)]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\right.$$

$$\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \sqrt{a}\ \sqrt{b}\ \left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.\left.\left.1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+(a+b)\left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right)$$

$$\left.\text{Sec}[c+d x]\right)\Big/\left(2\sqrt{a}\ \sqrt{b}\ \left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-$$

$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}\left(-8 a^3 A b+4 a^4 B-4 a^2 b^2 B\right)(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2$$

$$\left(-8\sqrt{a}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]-\right.\right.$$

$$\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\right)\right)\Big/$$

$$\left(8 a^2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 602: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\sqrt{\text{Cot}[c+d x]}\ (a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 534 leaves, 17 steps) :

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(15 a^4 A b-18 a^2 A b^3-A b^5-3 a^5 B+26 a^3 b^2 B-3 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 a^{3/2} \sqrt{b} \left(a^2+b^2\right)^3 d}+\frac{b (A b-a B) \sqrt{\text{Cot}[c+d x]}}{2 a \left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])^2}-$$

$$\frac{\left(9 a^2 A b+A b^3-5 a^3 B+3 a b^2 B\right) \sqrt{\text{Cot}[c+d x]}}{4 a \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])}-\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 986 leaves) :

$$\left(\sqrt{\text{Cot}[c+d\,x]}\;(B+A\,\text{Cot}[c+d\,x])\;\text{Csc}[c+d\,x]^2\right.$$

$$(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{b\,(-A\,b+a\,B)}{2\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{a\,b\,(-A\,b+a\,B)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\right.$$

$$\left.\left.\frac{-9\,a^2\,A\,b\,\text{Sin}[c+d\,x]+3\,A\,b^3\,\text{Sin}[c+d\,x]+5\,a^3\,B\,\text{Sin}[c+d\,x]-7\,a\,b^2\,B\,\text{Sin}[c+d\,x]}{4\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)\right)\Big/$$

$$\left(d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+\left((B+A\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\right.$$

$$\left(-\left(2\,\left(a^2\,A\,b+A\,b^3-a^3\,B-a\,b^2\,B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\,\text{Sec}[c+d\,x]\right)\Big/\right.$$

$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d\,x]^2\right)^2\,(a+b\,\text{Tan}[c+d\,x])\right)-\left(\left(8\,a^2\,A\,b-4\,a^3\,B+4\,a\,b^2\,B\right)\,\text{Cos}[2\,(c+d\,x)]\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^3\right.$$

$$\left(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a-b)\,\text{ArcTan}\left[\right.\right.\right.$$

$$\left.\left.\left.1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)$$

$$\left.\text{Sec}[c+d\,x]\right)\Big/\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d\,x]^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])\right)-$$

$$\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])}\,\left(4\,a^3\,A-4\,a\,A\,b^2+8\,a^2\,b\,B\right)\,(b+a\,\text{Cot}[c+d\,x])\,\text{Csc}[c+d\,x]^2$$

$$\left(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{b}}\right]+\sqrt{2}\,\left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}\right]-\right.\right.$$

$$\left.\left.\left.\left.(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d\,x]}+\text{Cot}[c+d\,x]\right]\right)\right)\right)\,\text{Sec}[c+d\,x]^2\,\text{Sin}[2\,(c+d\,x)]\right)\right)\Big/$$

$$\left(8\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,d\,(b+a\,\text{Cot}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

- **Problem 603: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 530 leaves, 17 steps):

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^4 A b-26 a^2 A b^3+3 A b^5+a^5 B+18 a^3 b^2 B-15 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 \sqrt{a}\, b^{3/2} \left(a^2+b^2\right)^3 d}-\frac{(A b-a B) \sqrt{\text{Cot}[c+d x]}}{2 \left(a^2+b^2\right) d\, (b+a \text{Cot}[c+d x])^2}+$$

$$\frac{\left(5 a^2 A b-3 A b^3-a^3 B+7 a b^2 B\right) \sqrt{\text{Cot}[c+d x]}}{4 b \left(a^2+b^2\right)^2 d\, (b+a \text{Cot}[c+d x])}+\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 983 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]}\,(B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\left(-\frac{-A b+a B}{2\,(a-i b)^2\,(a+i b)^2}+\frac{a^2\,(-A b+a B)}{2\,(a-i b)^2\,(a+i b)^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\frac{5 a^2 A b\,\text{Sin}[c+d x]-7 A b^3\,\text{Sin}[c+d x]-a^3 B\,\text{Sin}[c+d x]+11 a b^2 B\,\text{Sin}[c+d x]}{4\,(a-i b)^2\,(a+i b)^2\,b\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\right)\Big/$$

$$\left(d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+\Bigg((B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3$$

$$\Bigg(-\left(2\left(-a^2 A b-A b^3+a^3 B+a b^2 B\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\,\text{Sec}[c+d x]\right)\Big/$$

$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d x]^2\right)^2\,(a+b\,\text{Tan}[c+d x])\right)-\Bigg(\left(-4 a^2 A b+4 A b^3-8 a b^2 B\right)\text{Cos}[2\,(c+d x)]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3$$

$$\Bigg(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\Big(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\Big[$$

$$1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\Big]+(a+b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Bigg)$$

$$\text{Sec}[c+d x]\Bigg)\Big/\left(2\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-$$

$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}\left(8 a A b^2-4 a^2 b B+4 b^3 B\right)(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2$$

$$\Bigg(-8\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\Big(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]-$$

$$(a-b)\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Big)\Bigg)\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\Bigg)\Bigg)\Big/$$

$$\left(8\,(a-i b)^2\,(a+i b)^2\,b\,d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 604: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{A+B\,\text{Tan}[c+d x]}{\text{Cot}[c+d x]^{5/2}\,(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 534 leaves, 17 steps):

$$-\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\sqrt{a} \left(a^4 A b+18 a^2 A b^3-15 A b^5+3 a^5 B+6 a^3 b^2 B+35 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 b^{5/2} \left(a^2+b^2\right)^3 d}+$$

$$\frac{a (A b-a B) \sqrt{\text{Cot}[c+d x]}}{2 b \left(a^2+b^2\right) d (b+a \text{Cot}[c+d x])^2}-\frac{a \left(a^2 A b-7 A b^3+3 a^3 B+11 a b^2 B\right) \sqrt{\text{Cot}[c+d x]}}{4 b^2 \left(a^2+b^2\right)^2 d (b+a \text{Cot}[c+d x])}+$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}-$$

$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 1006 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\ \text{Csc}[c+d x]^2\ (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3 \left(\frac{a\,(-A b+a B)}{2\,(a-i b)^2\,(a+i b)^2\,b}-\frac{a^3\,(-A b+a B)}{2\,(a-i b)^2\,(a+i b)^2\,b\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\frac{-a^3 A b\,\text{Sin}[c+d x]+11\,a A b^3\,\text{Sin}[c+d x]-3\,a^4 B\,\text{Sin}[c+d x]-15\,a^2 b^2 B\,\text{Sin}[c+d x]}{4\,(a-i b)^2\,(a+i b)^2\,b^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}\right)\right)\Big/$$

$$\left(d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)+\Bigg((B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3$$

$$\Bigg(-\left(2\,\left(a^3 A b+a A b^3+3\,a^4 B+7\,a^2 b^2 B+4\,b^4 B\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\,\text{Sec}[c+d x]\right)\Big/$$

$$\left(\sqrt{a}\,\sqrt{b}\,\left(1+\text{Cot}[c+d x]^2\right)^2\,(a+b\,\text{Tan}[c+d x])\right)-\Bigg(\left(-8\,a A b^3+4\,a^2 b^2 B-4\,b^4 B\right)\,\text{Cos}[2\,(c+d x)]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3$$

$$\Bigg(-4\,\left(a^2-b^2\right)\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\sqrt{a}\,\sqrt{b}\,\Bigg(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\Big[$$

$$1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\Big]+(a+b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Bigg)\Bigg)$$

$$\text{Sec}[c+d x]\Bigg)\Big/\left(2\,\sqrt{a}\,\sqrt{b}\,\left(a^2+b^2\right)\,\left(-1+\text{Cot}[c+d x]^2\right)\,\left(1+\text{Cot}[c+d x]^2\right)\,(a+b\,\text{Tan}[c+d x])\right)-$$

$$\frac{1}{4\,\left(a^2+b^2\right)\,\left(1+\text{Cot}[c+d x]^2\right)\,(a+b\,\text{Tan}[c+d x])}\,\left(-4\,a^2 A b^2+4\,A b^4-8\,a b^3 B\right)\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2$$

$$\Bigg(-8\,\sqrt{a}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{a}\,\sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\,\Bigg(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}\right]-$$

$$(a-b)\,\left(\text{Log}\left[1-\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\,\sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\Bigg)\Bigg)\,\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\Bigg)\Bigg)\Big/$$

$$\left(8\,(a-i b)^2\,(a+i b)^2\,b^2\,d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 605: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{A+B\,\text{Tan}[c+d x]}{\text{Cot}[c+d x]^{7/2}\,(a+b\,\text{Tan}[c+d x])^3}\,dx$$

Optimal (type 3, 600 leaves, 18 steps) :

$$-\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}+$$
$$\frac{\left(3 a^2 b (A-B)-b^3 (A-B)-a^3 (A+B)+3 a b^2 (A+B)\right) \text{ArcTan}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}\right]}{\sqrt{2} \left(a^2+b^2\right)^3 d}-$$
$$\frac{a^{3/2} \left(3 a^4 A b+6 a^2 A b^3+35 A b^5-15 a^5 B-46 a^3 b^2 B-63 a b^4 B\right) \text{ArcTan}\left[\frac{\sqrt{a} \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]}{4 b^{7/2} \left(a^2+b^2\right)^3 d}-\frac{3 a^3 A b+11 a A b^3-15 a^4 B-31 a^2 b^2 B-8 b^4 B}{4 b^3 \left(a^2+b^2\right)^2 d \sqrt{\text{Cot}[c+d x]}}+$$
$$\frac{a (A b-a B)}{2 b \left(a^2+b^2\right) d \sqrt{\text{Cot}[c+d x]} (b+a \text{Cot}[c+d x])^2}+\frac{a \left(a^2 A b+9 A b^3-5 a^3 B-13 a b^2 B\right)}{4 b^2 \left(a^2+b^2\right)^2 d \sqrt{\text{Cot}[c+d x]} (b+a \text{Cot}[c+d x])}-$$
$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1-\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}+$$
$$\frac{\left(a^3 (A-B)-3 a b^2 (A-B)+3 a^2 b (A+B)-b^3 (A+B)\right) \text{Log}\left[1+\sqrt{2} \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]}{2 \sqrt{2} \left(a^2+b^2\right)^3 d}$$

Result (type 3, 1033 leaves) :

$$\left(\sqrt{\text{Cot}[c+d x]}\ (B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right.$$
$$\left(-\frac{a^2\,(-A b+a B)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2}+\frac{a^4\,(-A b+a B)}{2\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2}+\right.$$
$$\left.\left.\frac{-3 a^4 A b\,\text{Sin}[c+d x]-15 a^2 A b^3\,\text{Sin}[c+d x]+7 a^5 B\,\text{Sin}[c+d x]+19 a^3 b^2 B\,\text{Sin}[c+d x]}{4\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^3\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}+\frac{2 B\,\text{Tan}[c+d x]}{b^3}\right)\right)\Big/$$
$$\left(d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)-\left((B+A\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^3\right.$$
$$\left(-\left(2\left(-3 a^4 A b-7 a^2 A b^3-4 A b^5+15 a^5 B+31 a^3 b^2 B+16 a b^4 B\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right](b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\,\text{Sec}[c+d x]\right)\Big/\right.$$
$$\left(\sqrt{a}\ \sqrt{b}\ \left(1+\text{Cot}[c+d x]^2\right)^2\,(a+b\,\text{Tan}[c+d x])\right)-\left(\left(-4 a^2 A b^3+4 A b^5-8 a b^4 B\right)\text{Cos}[2\,(c+d x)]\,(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^3\right.$$
$$\left(-4\left(a^2-b^2\right)\text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \sqrt{a}\ \sqrt{b}\ \left(-2\,(a-b)\,\text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\,(a-b)\,\text{ArcTan}\left[\right.\right.\right.$$
$$\left.\left.\left.1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+(a+b)\left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right)$$
$$\left.\text{Sec}[c+d x]\right)\Big/\left(2\sqrt{a}\ \sqrt{b}\ \left(a^2+b^2\right)\left(-1+\text{Cot}[c+d x]^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])\right)-$$
$$\frac{1}{4\left(a^2+b^2\right)\left(1+\text{Cot}[c+d x]^2\right)(a+b\,\text{Tan}[c+d x])}\left(8 a A b^4-4 a^2 b^3 B+4 b^5 B\right)(b+a\,\text{Cot}[c+d x])\,\text{Csc}[c+d x]^2$$
$$\left(-8\sqrt{a}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a}\ \sqrt{\text{Cot}[c+d x]}}{\sqrt{b}}\right]+\sqrt{2}\ \left(-2\,(a+b)\,\text{ArcTan}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]+2\,(a+b)\,\text{ArcTan}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}\right]-\right.\right.$$
$$\left.\left.\left.\left.(a-b)\left(\text{Log}\left[1-\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]-\text{Log}\left[1+\sqrt{2}\ \sqrt{\text{Cot}[c+d x]}+\text{Cot}[c+d x]\right]\right)\right)\right)\text{Sec}[c+d x]^2\,\text{Sin}[2\,(c+d x)]\right)\right)\Big/$$
$$\left(8\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,b^3\,d\,(b+a\,\text{Cot}[c+d x])^3\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

- **Problem 612: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d x]^{9/2}\,\sqrt{a+b\,\text{Tan}[c+d x]}\ (A+B\,\text{Tan}[c+d x])\,dx$$

Optimal (type 3, 354 leaves, 12 steps):

$$-\frac{\sqrt{i a-b}\,(i A-B)\,\text{ArcTan}\left[\frac{\sqrt{i a-b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{d}-$$

$$\frac{\sqrt{i a+b}\,(i A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i a+b}\,\sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b\,\text{Tan}[c+d x]}}\right]\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Tan}[c+d x]}}{d}+$$

$$\frac{2\left(35 a^2 A b-8 A b^3+105 a^3 B+14 a b^2 B\right)\sqrt{\text{Cot}[c+d x]}\,\sqrt{a+b\,\text{Tan}[c+d x]}}{105 a^3 d}+\frac{2\left(35 a^2 A+4 A b^2-7 a b B\right)\text{Cot}[c+d x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d x]}}{105 a^2 d}-$$

$$\frac{2\,(A b+7 a B)\,\text{Cot}[c+d x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d x]}}{35 a d}-\frac{2 A\,\text{Cot}[c+d x]^{7/2}\sqrt{a+b\,\text{Tan}[c+d x]}}{7 d}$$

Result (type 4, 4853 leaves) :

$$\Bigg(\sqrt{\text{Cot}[c+d x]}\,(B+A\,\text{Cot}[c+d x])$$

$$\left(\frac{4\left(19 a^2 A b-4 A b^3+63 a^3 B+7 a b^2 B\right)}{105 a^3}+\frac{2\left(50 a^2 A\,\text{Cos}[c+d x]+4 A b^2\,\text{Cos}[c+d x]-7 a b B\,\text{Cos}[c+d x]\right)\text{Csc}[c+d x]}{105 a^2}-\right.$$

$$\left.\frac{2\,(A b+7 a B)\,\text{Csc}[c+d x]^2}{35 a}-\frac{2}{7}A\,\text{Cot}[c+d x]\,\text{Csc}[c+d x]^2\right)\text{Sin}[c+d x]\,\sqrt{a+b\,\text{Tan}[c+d x]}\Bigg)\Big/\ (d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x]))+$$

$$\left(4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\,(B+A\,\text{Cot}[c+d x])\right.$$

$$\left((a A-b B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)\,(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sin}[c+d\,x]\left(\frac{a\,A\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,B\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{A\,b\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a\,B\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\Bigg(-\Bigg(\Bigg(\mathrm{i}\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg((a\,A-b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left.\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(i\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\, b)\,(A+\mathrm{i}\, B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\, b)\,(A-\mathrm{i}\, B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \Bigg((a\,A-b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\, b)\,(A+\mathrm{i}\, B)$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\, b)\,(A-\mathrm{i}\, B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\;4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a\,A-b\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,A-b\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 613: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{7/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 290 leaves, 11 steps):

$$\frac{\sqrt{i\,a-b}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}-\frac{\sqrt{i\,a+b}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{2\,\left(15\,a^2\,A+2\,A\,b^2-5\,a\,b\,B\right)\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a^2\,d}-\frac{2\,(A\,b+5\,a\,B)\,\text{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,a\,d}-\frac{2\,A\,\text{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{5\,d}$$

Result (type 4, 4786 leaves):

$$\left(\sqrt{\text{Cot}[c+d\,x]}\,(B+A\,\text{Cot}[c+d\,x])\,\left(\frac{2\,\left(18\,a^2\,A+2\,A\,b^2-5\,a\,b\,B\right)}{15\,a^2}-\frac{2\,(A\,b\,\text{Cos}[c+d\,x]+5\,a\,B\,\text{Cos}[c+d\,x])\,\text{Csc}[c+d\,x]}{15\,a}-\frac{2}{5}\,A\,\text{Csc}[c+d\,x]^2\right)\right.$$

$$\left.\text{Sin}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/\,(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))-$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$(B+A\,\text{Cot}[c+d\,x])\,\left(i\,(A\,b+a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\text{i}\,b)\,(A-\text{i}\,B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\text{Sin}[c+d\,x]\left(-\frac{A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{a\,A\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\Bigg(\Bigg(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\Bigg(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\right.$$

$$\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\left(\text{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\text{i}\,b)\,(A-\text{i}\,B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\,b)\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\,b)\,(A-\text{i}\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(i\,(A\,b+a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i\,b)\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A\,b+a\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a-i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 614: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 239 leaves, 10 steps):

$$\frac{\sqrt{i\,a-b}\,(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{\sqrt{i\,a+b}\,(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{2\,(A\,b+3\,a\,B)\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,a\,d}-\frac{2\,A\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 4756 leaves):

$$\frac{\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\frac{2\,(A\,b+3\,a\,B)}{3\,a}-\frac{2}{3}\,A\,\mathrm{Cot}[c+d\,x]\right)\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}-$$

$$\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\ (B+A\,\text{Cot}[c+d\,x])\left((a\,A-b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\ (A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)\ (A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sin}[c+d\,x]\left(-\frac{a\,A\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{A\,b\,\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\,\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\ (A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(\left(\mathbb{i}\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \left((a\,A-b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\left.\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\big(b-\sqrt{a^2+b^2}\big)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]}\right)+$$

$$\left(\mathbb{i}\,a\,\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left((a\,A-b\,B)\,\text{EllipticF}\Big[\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\right.\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\left.\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\ \mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\big(b+\sqrt{a^2+b^2}\big)\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\,\mathbb{i}\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A-b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathbb{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A-b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\right.$$

$$\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \mathrm{Csc}[c+d\,x]^2\Bigg((a\,A-b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \Bigg((a\,A-b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left((a\,A-b\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,A-b\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 615: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 194 leaves, 9 steps):

$$-\frac{\sqrt{i\,a-b}\,(A+i\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{\sqrt{i\,a+b}\,(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d}$$

Result (type 4, 4716 leaves):

$$-\frac{2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(B+A\,\mathrm{Cot}[c+d\,x])\,\mathrm{Sin}[c+d\,x]\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\;\left(B+A\,\text{Cot}[c+d\,x]\right)\left(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\text{Sin}[c+d\,x]\left(\frac{A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\left.\frac{a\,A\,\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{b\,B\,\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)\,\left(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]\right)\right)$$

$$\left(-\left(\left(\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\mathrm{i}\,(A\,b+a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\right.$$

$$\text{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2\left(\mathrm{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\,(A\,b+a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(i(A b+a B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A\,b+a\,B)\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-i\,B)\ \text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 616: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}\ (A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 229 leaves, 13 steps):

$$-\frac{\sqrt{i\,a-b}\ (i\,A-B)\ \text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}+$$

$$\frac{2\sqrt{b}\ B\,\text{ArcTanh}\left[\frac{\sqrt{b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}-\frac{\sqrt{i\,a+b}\ (i\,A+B)\ \text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}$$

Result (type 4, 12 351 leaves):

$$\left(4\,a\,\text{Cos}[c+d\,x]\ \sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(A\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,a\,A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left(A\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}+B\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\,d\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)\left(\left(a^2\sqrt{\text{Cot}[c+d\,x]}\right.\right.$$

$$\Bigg(\text{A}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,\text{B}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\text{A}\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,\text{A}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,\text{B}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathbb{i}\,b\,\text{B}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathbb{i}\,a\,\text{A}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+\left(2\,a\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$

$$\left(A\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\, a\, A\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{a\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} +$$

$$\frac{i\, b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\, \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right) \sqrt{\text{Sec}[c+d\,x]}\, (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right) \Bigg/ \left(\sqrt{a^2+b^2}\, \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\, \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2 (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right) -$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(A\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathrm{i}\,b\,B\,\text{EllipticPi}\left[\frac{2\,\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\,\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\mathbb{i}\, a\, A\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}}\ -$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}}\ -$$

$$\frac{a\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}}\ +$$

$$\frac{\mathbb{i}\, b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\, a+b+\sqrt{a^2+b^2}}\ -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ +\ \frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\ 2\,a\,\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(\text{A EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{\text{b B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{A b EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\text{a B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{b B EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,\text{a A EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{i\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\left.\frac{b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}-$$

$$\frac{1}{\sqrt{a^2+b^2}\,\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}\,2\,a\,\sqrt{\text{Cot}[c+d\,x]}$$

$$\left(\mathrm{A\,EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\frac{b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{a\,A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{a\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{i\,a\,A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\, b\, \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\frac{a\, B\, \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} +$$

$$\frac{i\, b\, B\, \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}} -$$

$$\left.\frac{b\, B\, \text{EllipticPi}\left[\frac{2 \sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}}, \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2 \sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\ \sqrt{\frac{a \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (b \text{Cos}[c+d x]-a \text{Sin}[c+d x])}{a^2+b^2}+\frac{a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2} (c+d x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a \text{Sec}\left[\frac{1}{2} (c+d x)\right]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}{a^2+b^2}}}\ 4 a \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\left(a\,A\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\right.$$

$$\left(4\sqrt{2}\sqrt{a^2+b^2}\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a\,b\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,A\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(-i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2\,A\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\sqrt{a^2+b^2}\left(a+i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2 B \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg/\left(4 \sqrt{2} \sqrt{a^2+b^2} \left(-i a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(i a b B \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg/\left(4 \sqrt{2} \sqrt{a^2+b^2} \left(-i a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{-i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(i a^2 A \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg/\left(4 \sqrt{2} \sqrt{a^2+b^2} \left(i a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a A b \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Bigg/\left(4 \sqrt{2} \sqrt{a^2+b^2} \left(i a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \left(1-\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{i a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a^2\,B\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(\mathrm{i}\,a\,b\,B\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,b\,B\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 617: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\,\left(A+B\,\mathrm{Tan}[c+d\,x]\right)}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,dx$$

Optimal (type 3, 261 leaves, 14 steps):

$$\frac{\sqrt{i\,a-b}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{(2\,A\,b+a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{b}\,d}-$$

$$\frac{\sqrt{i\,a+b}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{B\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d\,\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 4, 59 809 leaves) : Display of huge result suppressed!

- **Problem 618: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\sqrt{a+b\,\text{Tan}[c+d\,x]}\,(A+B\,\text{Tan}[c+d\,x])}{\text{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 324 leaves, 15 steps) :

$$\frac{\sqrt{i\,a-b}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$

$$\frac{\left(4\,a\,A\,b-a^2\,B-8\,b^2\,B\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{4\,b^{3/2}\,d}+$$

$$\frac{\sqrt{i\,a+b}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{(4\,A\,b-a\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{4\,b\,d\,\sqrt{\text{Cot}[c+d\,x]}}+\frac{B\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{2\,b\,d\,\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 4, 73 529 leaves) : Display of huge result suppressed!

- **Problem 619: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{11/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 422 leaves, 13 steps) :

$$\frac{(\mathrm{i}\,a-b)^{3/2}\,(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{(\mathrm{i}\,a+b)^{3/2}\,(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{2\left(315\,a^4\,A-63\,a^2\,A\,b^2+8\,A\,b^4-420\,a^3\,b\,B-18\,a\,b^3\,B\right)\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a^3\,d}+$$

$$\frac{2\left(126\,a^2\,A\,b+4\,A\,b^3+105\,a^3\,B-9\,a\,b^2\,B\right)\mathrm{Cot}[c+d\,x]^{3/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{315\,a^2\,d}+\frac{2\left(21\,a^2\,A-A\,b^2-24\,a\,b\,B\right)\mathrm{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{105\,a\,d}-$$

$$\frac{2\,(10\,A\,b+9\,a\,B)\,\mathrm{Cot}[c+d\,x]^{7/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{63\,d}-\frac{2\,a\,A\,\mathrm{Cot}[c+d\,x]^{9/2}\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{9\,d}$$

Result (type 4, 5158 leaves) :

$$\frac{1}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$

$$\mathrm{Cos}[c+d\,x]^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\frac{2\left(413\,a^4\,A-66\,a^2\,A\,b^2+8\,A\,b^4-492\,a^3\,b\,B-18\,a\,b^3\,B\right)}{315\,a^3}+\frac{1}{315\,a^2}\right.$$

$$2\left(176\,a^2\,A\,b\,\mathrm{Cos}[c+d\,x]+4\,A\,b^3\,\mathrm{Cos}[c+d\,x]+150\,a^3\,B\,\mathrm{Cos}[c+d\,x]-9\,a\,b^2\,B\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]+$$

$$\left.\frac{2\left(133\,a^2\,A-3\,A\,b^2-72\,a\,b\,B\right)\mathrm{Csc}[c+d\,x]^2}{315\,a}-\frac{2}{63}\,(10\,A\,b\,\mathrm{Cos}[c+d\,x]+9\,a\,B\,\mathrm{Cos}[c+d\,x])\,\mathrm{Csc}[c+d\,x]^3-\frac{2}{9}\,a\,A\,\mathrm{Csc}[c+d\,x]^4\right)$$

$$(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])+\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\mathrm{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(\frac{2\,a\,A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$
$$\frac{b^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2\,A\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$
$$\left.\frac{A\,b^2\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{2\,a\,b\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\left(\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\text{i}\,b)^2\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a-\text{i}\,b)^2\,(A-\text{i}\,B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\mathrm{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)$$

$$\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\mathrm{Csc}[c+d\,x]^2\left(\mathbb{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}\;+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathbb{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 2\,\text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(\text{i}\ \left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\ \text{EllipticF}\left[\text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\text{i}\ b)^2\ (A+\text{i}\ B)\ \text{EllipticPi}\left[-\frac{\text{i}\ \left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\text{i}\ b)^2\ (A-\text{i}\ B)$$

$$\left.\text{EllipticPi}\left[\frac{\text{i}\ \left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\ \text{Sec}[c+d\,x]^{3/2}\ \text{Sin}[c+d\,x]\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 4\,\text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\text{i}\ (a+\text{i}\ b)^2\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+\text{i}\ B)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\,\left(1-\text{i}\ \text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}-$$

$$\frac{i\,(a-i\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\Bigg)$$

- **Problem 620: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{9/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 351 leaves, 12 steps):

$$-\frac{(i\,a-b)^{3/2}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}-$$
$$\frac{(i\,a+b)^{3/2}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{2\left(140\,a^2\,A\,b+6\,A\,b^3+105\,a^3\,B-21\,a\,b^2\,B\right)\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,a^2\,d}+\frac{2\left(35\,a^2\,A-3\,A\,b^2-42\,a\,b\,B\right)\text{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,a\,d}-$$
$$\frac{2\,(8\,A\,b+7\,a\,B)\,\text{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{35\,d}-\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{7/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{7\,d}$$

Result (type 4, 5099 leaves):

$$\Bigg(\text{Cos}[c+d\,x]^2\,\sqrt{\text{Cot}[c+d\,x]}$$
$$\left(\frac{2\left(164\,a^2\,A\,b+6\,A\,b^3+126\,a^3\,B-21\,a\,b^2\,B\right)}{105\,a^2}+\frac{2\left(50\,a^2\,A\,\text{Cos}[c+d\,x]-3\,A\,b^2\,\text{Cos}[c+d\,x]-42\,a\,b\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]}{105\,a}-\right.$$
$$\left.\frac{2}{35}\,(8\,A\,b+7\,a\,B)\,\text{Csc}[c+d\,x]^2-\frac{2}{7}\,a\,A\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\right)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/$$
$$(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]))+$$
$$\Bigg(4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{a^2\,A\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{A\,b^2\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{2\,a\,b\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{2\,a\,A\,b\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+$$

$$\left.\frac{a^2\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^2\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\left(\left(i\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\Bigg) -$$

$$\left(i a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(\left(a^2 A-A b^2-2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.\left.(a-i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\,\mathrm{i}\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \Bigg(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \sqrt{\mathrm{Sec}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \Bigg(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\text{Csc}[c+d\,x]^2\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\ \text{Sin}\left[\frac{1}{2} (c+d x)\right] \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 2 i \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \left(\left(a^2 A - A b^2 - 2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a-i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^{3/2} \text{Sin}[c+d x] \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 4 i \text{Cos}\left[\frac{1}{2} (c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d x]}\ \sqrt{\mathrm{Sec}[c+d x]}\ \left(-\frac{i \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(a^2 A-A b^2-2 a b B\right) \mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i (a+i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \left(1-i\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+$$

$$\left.\left.\frac{i (a-i b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-i B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}\right) \mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\right)\right)$$

- **Problem 621: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d x]^{7/2}\,(a+b\,\mathrm{Tan}[c+d x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d x])\,dx$$

Optimal (type 3, 299 leaves, 11 steps):

$$\frac{(a+i b)^2 (i A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i a-b}\ \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right] \sqrt{\mathrm{Cot}[c+d x]}\ \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{i a-b}\ d}+$$

$$\frac{(i a+b)^{3/2} (i A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i a+b}\ \sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right] \sqrt{\mathrm{Cot}[c+d x]}\ \sqrt{\mathrm{Tan}[c+d x]}}{d}+\frac{2 \left(15 a^2 A-3 A b^2-20 a b B\right) \sqrt{\mathrm{Cot}[c+d x]}\ \sqrt{a+b\,\mathrm{Tan}[c+d x]}}{15 a d}-$$

$$\frac{2 (6 A b+5 a B)\,\mathrm{Cot}[c+d x]^{3/2} \sqrt{a+b\,\mathrm{Tan}[c+d x]}}{15 d}-\frac{2 a A\,\mathrm{Cot}[c+d x]^{5/2} \sqrt{a+b\,\mathrm{Tan}[c+d x]}}{5 d}$$

Result (type 4, 5041 leaves):

$$\left(\mathrm{Cos}[c+d x]^2 \sqrt{\mathrm{Cot}[c+d x]}\ \left(\frac{2 \left(18 a^2 A-3 A b^2-20 a b B\right)}{15 a}-\frac{2}{15} (6 A b\,\mathrm{Cos}[c+d x]+5 a B\,\mathrm{Cos}[c+d x])\,\mathrm{Csc}[c+d x]-\frac{2}{5} a A\,\mathrm{Csc}[c+d x]^2\right)\right.$$

$$\left.(a+b\,\mathrm{Tan}[c+d x])^{3/2} (A+B\,\mathrm{Tan}[c+d x])\right) \Big/ \left(d\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}\,+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(-\mathbb{i}\,\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-\frac{2\,a\,A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\right.$$

$$\frac{b^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,A\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-$$

$$\left.\frac{A\,b^2\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{2\,a\,b\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$-\left(\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}$$

$$(b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}$$

$$2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \text{Csc}[c+d x]^2$$

$$\Bigg(-i\left(2 a A b+a^2 B-b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 4\,\text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]\ \sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(-i\ \left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\ \text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\ (A+i\,B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2\ (A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\ \sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}\ (c+d\,x)\right]\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 2\,\text{Cos}\left[\frac{1}{2}\ (c+d\,x)\right]^2\ \sqrt{\frac{b+\sqrt{a^2+b^2}\ +a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(-i\ \left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\ \text{EllipticF}\left[i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^2\ (A+i\,B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\ \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2\ (A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Bigg)$$

- **Problem 622: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 236 leaves, 10 steps) :

$$\frac{(\mathrm{i}\,a-b)^{3/2}\,(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$

$$\frac{(\mathrm{i}\,a+b)^{3/2}\,(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{2\,(4\,A\,b+3\,a\,B)\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}-\frac{2\,a\,A\,\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3\,d}$$

Result (type 4, 5000 leaves) :

$$\left(\mathrm{Cos}[c+d\,x]^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(-\frac{2}{3}\,(4\,A\,b+3\,a\,B)-\frac{2}{3}\,a\,A\,\mathrm{Cot}[c+d\,x]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$(d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x]))-$$

$$\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\mathrm{Cos}[c+d\,x]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a^2\,A-A\,b^2-2\,a\,b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-\frac{a^2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{A\,b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{2\,a\,b\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{2\,a\,A\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{a^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{b^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\Bigg) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}$$

$$(a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x])\Bigg) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$\Bigg(\Bigg(\mathbb{i}\, a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A-A b^2-2 a b B\right) \text{EllipticF}\left[\mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathbb{i} b)^2 (A+\mathbb{i} B) \text{EllipticPi}\left[-\frac{\mathbb{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathbb{i} b)^2 (A-\mathbb{i} B) \text{EllipticPi}\left[\frac{\mathbb{i} \left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)+$$

$$\Bigg(\mathbb{i}\, a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A-A b^2-2 a b B\right) \text{EllipticF}\left[\mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\left.(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\mathrm{i}\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\left(a^2A-A\,b^2-2\,a\,b\,B\right)\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\right.$$

$$\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ (b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \mathrm{Csc}[c+d\,x]^2\left(\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a - i b)^2 (A - i B) \text{EllipticPi}\left[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\Bigg) \sqrt{\text{Sec}[c + d x]} \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]}} 4 i \text{Cos}\left[\frac{1}{2} (c + d x)\right] \sqrt{\frac{b + \sqrt{a^2 + b^2} + a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{\text{Cot}[c + d x]} \Bigg(\left(a^2 A - A b^2 - 2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] -$$

$$(a + i b)^2 (A + i B) \text{EllipticPi}\left[-\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] - (a - i b)^2 (A - i B)$$

$$\text{EllipticPi}\left[\frac{i \left(b + \sqrt{a^2 + b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right]\Bigg) \sqrt{\text{Sec}[c + d x]} \text{Sin}\left[\frac{1}{2} (c + d x)\right] \text{Tan}\left[\frac{1}{2} (c + d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c + d x] + b \text{Sin}[c + d x]}} 2 i \text{Cos}\left[\frac{1}{2} (c + d x)\right]^2 \sqrt{\frac{b + \sqrt{a^2 + b^2} + a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b + \sqrt{a^2 + b^2}}} \sqrt{1 + \frac{a \text{Cot}\left[\frac{1}{2} (c + d x)\right]}{b - \sqrt{a^2 + b^2}}}$$

$$\sqrt{\text{Cot}[c + d x]} \Bigg(\left(a^2 A - A b^2 - 2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c + d x)\right]}}\right], \frac{b + \sqrt{a^2 + b^2}}{b - \sqrt{a^2 + b^2}}\right] -$$

$$(a+\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathbb{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a^2\,A-A\,b^2-2\,a\,b\,B\right)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}\,(a+\mathbb{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathbb{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathbb{i}\,(a-\mathbb{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\mathbb{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 623: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 269 leaves, 14 steps):

$$-\frac{(a+i b)^2 (i A-B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{i a-b}\, d}+\frac{2 b^{3/2} B \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}-\frac{(i a+b)^{3/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}-\frac{2 a A \sqrt{\text{Cot}[c+d x]} \sqrt{a+b \text{Tan}[c+d x]}}{d}$$

Result (type 4, 74 118 leaves): Display of huge result suppressed!

Problem 624: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \sqrt{\text{Cot}[c+d x]}\, (a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x])\, dx$$

Optimal (type 3, 264 leaves, 14 steps):

$$-\frac{(i a-b)^{3/2} (A+i B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+\frac{\sqrt{b} (2 A b+3 a B) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}-\frac{(i a+b)^{3/2} (A-i B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+\frac{b B \sqrt{a+b \text{Tan}[c+d x]}}{d \sqrt{\text{Cot}[c+d x]}}$$

Result (type 4, 82 770 leaves): Display of huge result suppressed!

Problem 625: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{(a+b \text{Tan}[c+d x])^{3/2} (A+B \text{Tan}[c+d x])}{\sqrt{\text{Cot}[c+d x]}}\, dx$$

Optimal (type 3, 328 leaves, 15 steps):

$$\frac{(a+i b)^2 (i A-B) \text{ArcTan}\left[\frac{\sqrt{i a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{\sqrt{i a-b}\, d}+\frac{\left(12 a A b+3 a^2 B-8 b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{4 \sqrt{b}\, d}+\frac{(i a+b)^{3/2} (i A+B) \text{ArcTanh}\left[\frac{\sqrt{i a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+\frac{b B \sqrt{a+b \text{Tan}[c+d x]}}{2 d \text{Cot}[c+d x]^{3/2}}+\frac{(4 A b+5 a B) \sqrt{a+b \text{Tan}[c+d x]}}{4 d \sqrt{\text{Cot}[c+d x]}}$$

Result (type 4, 91 499 leaves) : Display of huge result suppressed!

- **Problem 626: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Cot}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 3, 383 leaves, 16 steps) :

$$\frac{(i\,a-b)^{3/2}\,(A+i\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$
$$\frac{\left(6\,a^2\,A\,b-16\,A\,b^3-a^3\,B-24\,a\,b^2\,B\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{8\,b^{3/2}\,d}+$$
$$\frac{(i\,a+b)^{3/2}\,(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}+$$
$$\frac{\left(6\,a\,A\,b-a^2\,B-8\,b^2\,B\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{8\,b\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}}+\frac{(6\,A\,b-a\,B)\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{12\,b\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}}+\frac{B\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}{3\,b\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 4, 105 230 leaves) : Display of huge result suppressed!

- **Problem 627: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[c+d\,x]^{13/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 500 leaves, 14 steps) :

$$-\frac{(\mathrm{i}\,a-b)^{5/2}\,(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-$$

$$\frac{(\mathrm{i}\,a+b)^{5/2}\,(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{d}-\frac{1}{3465\,a^3\,d}$$

$$2\left(8085\,a^4\,A\,b-495\,a^2\,A\,b^3+40\,A\,b^5+3465\,a^5\,B-5313\,a^3\,b^2\,B-110\,a\,b^4\,B\right)\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}-$$

$$\frac{2\left(1155\,a^4\,A-1485\,a^2\,A\,b^2-20\,A\,b^4-2541\,a^3\,b\,B+55\,a\,b^3\,B\right)\mathrm{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{3465\,a^2\,d}+$$

$$\frac{2\left(495\,a^2\,A\,b-5\,A\,b^3+231\,a^3\,B-275\,a\,b^2\,B\right)\mathrm{Cot}[c+d\,x]^{5/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{1155\,a\,d}+$$

$$\frac{2\left(99\,a^2\,A-113\,A\,b^2-209\,a\,b\,B\right)\mathrm{Cot}[c+d\,x]^{7/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{693\,d}-$$

$$\frac{2\,a\,(14\,A\,b+11\,a\,B)\,\mathrm{Cot}[c+d\,x]^{9/2}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{99\,d}-\frac{2\,a\,A\,\mathrm{Cot}[c+d\,x]^{11/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}{11\,d}$$

Result (type 4, 5419 leaves) :

$$\frac{1}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$

$$\mathrm{Cos}[c+d\,x]^3\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\frac{2\left(10\,375\,a^4\,A\,b-510\,a^2\,A\,b^3+40\,A\,b^5+4543\,a^5\,B-6138\,a^3\,b^2\,B-110\,a\,b^4\,B\right)}{3465\,a^3}-\frac{1}{3465\,a^2}\right.$$

$$2\left(1965\,a^4\,A\,\mathrm{Cos}[c+d\,x]-2050\,a^2\,A\,b^2\,\mathrm{Cos}[c+d\,x]-20\,A\,b^4\,\mathrm{Cos}[c+d\,x]-3586\,a^3\,b\,B\,\mathrm{Cos}[c+d\,x]+55\,a\,b^3\,B\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]+$$

$$\frac{2\left(3095\,a^2\,A\,b-15\,A\,b^3+1463\,a^3\,B-825\,a\,b^2\,B\right)\mathrm{Csc}[c+d\,x]^2}{3465\,a}+\frac{2}{693}\left(225\,a^2\,A\,\mathrm{Cos}[c+d\,x]-113\,A\,b^2\,\mathrm{Cos}[c+d\,x]-209\,a\,b\,B\,\mathrm{Cos}[c+d\,x]\right)$$

$$\left.\mathrm{Csc}[c+d\,x]^3-\frac{2}{99}\,a\,(23\,A\,b+11\,a\,B)\,\mathrm{Csc}[c+d\,x]^4-\frac{2}{11}\,a^2\,A\,\mathrm{Cot}[c+d\,x]\,\mathrm{Csc}[c+d\,x]^4\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])-$$

$$\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$

$$\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)$$

$$\left(-\frac{a^3 A \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{3 a A b^2 \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\right.$$

$$\frac{3 a^2 b B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{b^3 B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-$$

$$\frac{3 a^2 A b \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{A b^3 \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-$$

$$\left.\frac{a^3 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{3 a b^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}$$

$$(a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\Bigg) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, d\, (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$\left(\left(i a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] - (a+\mathrm{i}\, b)^3\, (A+\mathrm{i}\, B)\, \text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a-\mathrm{i}\, b)^3\, (A-\mathrm{i}\, B)\, \text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right) +$$

$$\Bigg(\mathrm{i}\, a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\left(a^3 A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a+\mathrm{i}\, b)^3\, (A+\mathrm{i}\, B)\, \text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big] -$$

$$(a-\mathrm{i}\, b)^3\, (A-\mathrm{i}\, B)\, \text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right) -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,i\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ +$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i\,b)^3\,(A+i\,B)\right.$$

$$\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\ \text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\Bigg(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+i\,b)^3\,(A+i\,B)\ \text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-i\,b)^3\,(A-i\,B)\ \text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\big[\frac{1}{2}(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\big[\frac{1}{2}(c+d\,x)\big]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \Bigg(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\big[\frac{1}{2}(c+d\,x)\big]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{\mathrm{i}\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\ (a+\mathrm{i}\ b)^3\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+\mathrm{i}\ B)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\ \left(1-\mathrm{i}\ \text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\frac{\mathrm{i}\ (a-\mathrm{i}\ b)^3\ \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-\mathrm{i}\ B)\ \text{Sec}\left[\frac{1}{2}\ (c+d\,x)\right]^2}{4\ \left(1+\mathrm{i}\ \text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]\right)\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}}\right)\ \text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 628: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{11/2}\ (a+b\,\text{Tan}[c+d\,x])^{5/2}\ (A+B\,\text{Tan}[c+d\,x])\ dx$$

Optimal (type 3, 418 leaves, 13 steps):

$$\frac{(\mathrm{i}\ a-b)^{5/2}\ (A+\mathrm{i}\ B)\ \text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\ a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}-$$

$$\frac{(\mathrm{i}\ a+b)^{5/2}\ (A-\mathrm{i}\ B)\ \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\ a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{d}-$$

$$\frac{2\ \left(315\,a^4\,A-483\,a^2\,A\,b^2-10\,A\,b^4-735\,a^3\,b\,B+45\,a\,b^3\,B\right)\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}{315\,a^2\,d}+$$

$$\frac{2\ \left(231\,a^2\,A\,b-5\,A\,b^3+105\,a^3\,B-135\,a\,b^2\,B\right)\ \text{Cot}[c+d\,x]^{3/2}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}{315\,a\,d}+\frac{2\ \left(21\,a^2\,A-25\,A\,b^2-45\,a\,b\,B\right)\ \text{Cot}[c+d\,x]^{5/2}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,d}-$$

$$\frac{2\,a\ (4\,A\,b+3\,a\,B)\ \text{Cot}[c+d\,x]^{7/2}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}{21\,d}-\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{9/2}\ (a+b\,\text{Tan}[c+d\,x])^{3/2}}{9\,d}$$

Result (type 4, 5348 leaves):

$$\frac{1}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])}$$

$$\mathrm{Cos}[c+d\,x]^3\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\frac{2\left(413\,a^4\,A-558\,a^2\,A\,b^2-10\,A\,b^4-870\,a^3\,b\,B+45\,a\,b^3\,B\right)}{315\,a^2}+\frac{1}{315\,a}\right.$$
$$2\left(326\,a^2\,A\,b\,\mathrm{Cos}[c+d\,x]-5\,A\,b^3\,\mathrm{Cos}[c+d\,x]+150\,a^3\,B\,\mathrm{Cos}[c+d\,x]-135\,a\,b^2\,B\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]+\frac{2}{315}\left(133\,a^2\,A-75\,A\,b^2-135\,a\,b\,B\right)$$
$$\left.\mathrm{Csc}[c+d\,x]^2-\frac{2}{63}\left(19\,a\,A\,b\,\mathrm{Cos}[c+d\,x]+9\,a^2\,B\,\mathrm{Cos}[c+d\,x]\right)\mathrm{Csc}[c+d\,x]^3-\frac{2}{9}\,a^2\,A\,\mathrm{Csc}[c+d\,x]^4\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\,(A+B\,\mathrm{Tan}[c+d\,x])+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\mathrm{Cos}[c+d\,x]^3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\right.$$

$$\left(\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{3\,a^2\,A\,b\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{A\,b^3\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$
$$\frac{a^3\,B\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{3\,a\,b^2\,B\sqrt{\mathrm{Cot}[c+d\,x]}}{\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$
$$\frac{a^3\,A\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{3\,a\,A\,b^2\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+$$

$$\frac{3\, a^2\, b\, B\, \sqrt{\text{Cot}[c+d\,x]}\, \sqrt{\text{Sec}[c+d\,x]}\, \text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^3\, B\, \sqrt{\text{Cot}[c+d\,x]}\, \sqrt{\text{Sec}[c+d\,x]}\, \text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\Bigg)\, \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

$$(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\Bigg(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])$$

$$\Bigg(-\Bigg(\Bigg(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\Bigg[\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Bigg[-\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]+$$

$$(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\Bigg[\frac{\mathbb{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\Bigg(\left(b-\sqrt{a^2+b^2}\right)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\Bigg)\Bigg)-$$

$$\Bigg(a\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\mathbb{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\Bigg[\mathbb{i}\,\text{ArcSinh}\Bigg[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Bigg],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]-$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\mathrm{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\mathrm{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}$$

$$2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(\mathrm{i}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \Bigg(\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\Big[\mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\mathrm{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\mathrm{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}\Big[\frac{1}{2}\,(c+d\,x)\Big]\,\mathrm{Tan}\Big[\frac{1}{2}\,(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathbb{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathbb{i}\,b)^3\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a-\mathbb{i}\,b)^3\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}\,(a+\mathbb{i}\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathbb{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a-i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 629: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{9/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 349 leaves, 12 steps):

$$\frac{(i\,a-b)^{5/2}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{(i\,a+b)^{5/2}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{2\left(245\,a^2\,A\,b-15\,A\,b^3+105\,a^3\,B-161\,a\,b^2\,B\right)\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,a\,d}+\frac{2\left(35\,a^2\,A-45\,A\,b^2-77\,a\,b\,B\right)\text{Cot}[c+d\,x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{105\,d}-$$
$$\frac{2\,a\,(10\,A\,b+7\,a\,B)\,\text{Cot}[c+d\,x]^{5/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}{35\,d}-\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{7/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{7\,d}$$

Result (type 4, 5276 leaves):

$$\Bigg(\text{Cos}[c+d\,x]^3\sqrt{\text{Cot}[c+d\,x]}$$
$$\left(\frac{2\left(290\,a^2\,A\,b-15\,A\,b^3+126\,a^3\,B-161\,a\,b^2\,B\right)}{105\,a}+\frac{2}{105}\left(50\,a^2\,A\,\text{Cos}[c+d\,x]-45\,A\,b^2\,\text{Cos}[c+d\,x]-77\,a\,b\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]-\right.$$
$$\left.\frac{2}{35}\,a\,(15\,A\,b+7\,a\,B)\,\text{Csc}[c+d\,x]^2-\frac{2}{7}\,a^2\,A\,\text{Cot}[c+d\,x]\,\text{Csc}[c+d\,x]^2\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\Bigg)\Big/$$
$$\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$
$$\left(4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Cos}[c+d\,x]^3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d x]}\ \left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{a^3 A \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{3 a A b^2 \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\right.$$

$$\frac{3 a^2 b B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{b^3 B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\frac{3 a^2 A b \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{A b^3 \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\left.\frac{a^3 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{3 a b^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}$$

$$\left.(a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right) \Bigg/ \left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$-\left(\left(\left(\mathrm{i}\, a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]}\left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{EllipticF}\left[\mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\, b)^3 (A+\mathrm{i}\, B) \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\, b)^3 (A-\mathrm{i}\, B) \operatorname{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left.\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]} \sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\right)-$$

$$\left(\mathrm{i}\, a \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]}\left(\left(a^3 A-3 a A b^2-3 a^2 b B+b^3 B\right) \operatorname{EllipticF}\left[\mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a+\mathrm{i}\, b)^3 (A+\mathrm{i}\, B) \operatorname{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\, b)^3 (A-\mathrm{i}\, B) \operatorname{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathrm{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\right) \Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+\mathrm{i}\, b)^3 (A+\mathrm{i}\, B)\, \text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-\mathrm{i}\, b)^3 (A-\mathrm{i}\, B)\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x] - a\,\text{Sin}[c+d\,x])\, \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2} - \frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\, \sqrt{\text{Cot}[c+d\,x]}\, \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$2\,\mathrm{i}\, \text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\, \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\, \text{Csc}[c+d\,x]^2$$

$$\left(\left(a^3 A - 3\,a\,A\,b^2 - 3\,a^2\,b\,B + b^3\,B\right) \text{EllipticF}\left[\mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a+\mathrm{i}\, b)^3 (A+\mathrm{i}\, B)\, \text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a-\mathrm{i}\, b)^3 (A-\mathrm{i}\, B)\, \text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\, \mathrm{i}\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\, \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\ \mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,i\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \left(\left(a^3\,A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a^3A-3\,a\,A\,b^2-3\,a^2\,b\,B+b^3B\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a+i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\frac{i\,(a-i\,b)^3\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\Bigg)$$

- **Problem 630: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{7/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 287 leaves, 11 steps) :

$$-\frac{(\mathrm{i}\,a-b)^{5/2}\,(A+\mathrm{i}\,B)\,\text{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$

$$\frac{(\mathrm{i}\,a+b)^{5/2}\,(A-\mathrm{i}\,B)\,\text{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+\frac{2\left(15\,a^2\,A-23\,A\,b^2-35\,a\,b\,B\right)\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,d}-$$

$$\frac{2\,a\,(8\,A\,b+5\,a\,B)\,\text{Cot}[c+d\,x]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{15\,d}-\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{5\,d}$$

Result (type 4, 5229 leaves):

$$\left(\text{Cos}[c+d\,x]^3\,\sqrt{\text{Cot}[c+d\,x]}\,\left(\frac{2}{15}\left(18\,a^2\,A-23\,A\,b^2-35\,a\,b\,B\right)-\frac{2}{15}\left(11\,a\,A\,b\,\text{Cos}[c+d\,x]+5\,a^2\,B\,\text{Cos}[c+d\,x]\right)\text{Csc}[c+d\,x]-\frac{2}{5}\,a^2\,A\,\text{Csc}[c+d\,x]^2\right)\right.$$

$$\left.(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(d\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Cos}[c+d\,x]^3\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\right.$$

$$\left(-\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(-\frac{3\,a^2\,A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^3\,\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\frac{a^3 B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{3 a b^2 B \sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+$$

$$\frac{a^3 A \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-\frac{3 a A b^2 \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}-$$

$$\left.\frac{3 a^2 b B \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{b^3 B \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right) \text{Tan}\left[\frac{1}{2} (c+d x)\right]^{3/2}$$

$$\left.(a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\right)\Big/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\ (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$\left(-\left(\left(a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \left(-i \left(3 a^2 A b-A b^3+a^3 B-3 a b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i b)^3 (A+i B) \text{EllipticPi}\left[-\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-i b)^3 (A-i B) \text{EllipticPi}\left[\frac{i \left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right)\Big/$$

$$\left.\left(\left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2} (c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2} (c+d x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+\mathrm{i}\,b)^3\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathrm{i}\,b)^3\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \left(-i\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-i\,b)^3\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2$$

$$\left(-i\left(3a^2Ab-Ab^3+a^3B-3ab^2B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+ib)^3(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a-ib)^3(A-iB)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+dx]}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx]}}4\,\text{Cos}\left[\frac{1}{2}(c+dx)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+dx]}\left(-i\left(3a^2Ab-Ab^3+a^3B-3ab^2B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+ib)^3(A+iB)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-ib)^3(A-iB)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+dx]}\,\text{Sin}\left[\frac{1}{2}(c+dx)\right]\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(-i\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$(a+i\,b)^3\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^3\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(3\,a^2\,A\,b-A\,b^3+a^3\,B-3\,a\,b^2\,B\right)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-\right.$$

$$\frac{i\,(a+i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a-i\,b)^3\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\right)$$

- **Problem 631: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{5/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 300 leaves, 15 steps):

$$-\frac{(i\,a-b)^{5/2}\,(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{2\,b^{5/2}\,B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}-\frac{(i\,a+b)^{5/2}\,(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}-$$
$$\frac{2\,a\,(2\,A\,b+a\,B)\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d}-\frac{2\,a\,A\,\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{3\,d}$$

Result (type 4, 97 068 leaves): Display of huge result suppressed!

- **Problem 632: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\,(A+B\,\text{Tan}[c+d\,x])\,dx$$

Optimal (type 3, 301 leaves, 15 steps):

$$\frac{(i\,a-b)^{5/2}\,(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{b^{3/2}\,(2\,A\,b+5\,a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}-$$
$$\frac{(i\,a+b)^{5/2}\,(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{d}+$$
$$\frac{b\,(2\,a\,A+b\,B)\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}{d\,\sqrt{\text{Cot}[c+d\,x]}}-\frac{2\,a\,A\,\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}{d}$$

Result (type 4, 105 692 leaves): Display of huge result suppressed!

- **Problem 633: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \sqrt{\text{Cot}[c+d x]}\, (a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])\, dx$$

Optimal (type 3, 320 leaves, 15 steps):

$$\frac{(\mathrm{i} a-b)^{5/2} (\mathrm{i} A-B) \text{ArcTan}\left[\frac{\sqrt{\mathrm{i} a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{\sqrt{b} \left(20 a A b+15 a^2 B-8 b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{4 d}+$$
$$\frac{(\mathrm{i} a+b)^{5/2} (\mathrm{i} A+B) \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i} a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+\frac{b (4 A b+7 a B) \sqrt{a+b \text{Tan}[c+d x]}}{4 d \sqrt{\text{Cot}[c+d x]}}+\frac{b B (a+b \text{Tan}[c+d x])^{3/2}}{2 d \sqrt{\text{Cot}[c+d x]}}$$

Result (type 4, 114 434 leaves): Display of huge result suppressed!

- **Problem 634: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])}{\sqrt{\text{Cot}[c+d x]}}\, dx$$

Optimal (type 3, 376 leaves, 16 steps):

$$-\frac{(\mathrm{i} a-b)^{5/2} (A+\mathrm{i} B) \text{ArcTan}\left[\frac{\sqrt{\mathrm{i} a-b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{\left(30 a^2 A b-16 A b^3+5 a^3 B-40 a b^2 B\right) \text{ArcTanh}\left[\frac{\sqrt{b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{8 \sqrt{b}\, d}+$$
$$\frac{(\mathrm{i} a+b)^{5/2} (A-\mathrm{i} B) \text{ArcTanh}\left[\frac{\sqrt{\mathrm{i} a+b} \sqrt{\text{Tan}[c+d x]}}{\sqrt{a+b \text{Tan}[c+d x]}}\right] \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Tan}[c+d x]}}{d}+$$
$$\frac{\left(14 a A b+5 a^2 B-8 b^2 B\right) \sqrt{a+b \text{Tan}[c+d x]}}{8 d \sqrt{\text{Cot}[c+d x]}}+\frac{b B (a+b \text{Tan}[c+d x])^{3/2}}{3 d \text{Cot}[c+d x]^{3/2}}+\frac{(2 A b+3 a B) (a+b \text{Tan}[c+d x])^{3/2}}{4 d \sqrt{\text{Cot}[c+d x]}}$$

Result (type 4, 123 145 leaves): Display of huge result suppressed!

- **Problem 635: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \text{Tan}[c+d x])^{5/2} (A+B \text{Tan}[c+d x])}{\text{Cot}[c+d x]^{3/2}}\, dx$$

Optimal (type 3, 457 leaves, 17 steps):

$$-\frac{(i a-b)^{5/2}(i A-B)\operatorname{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\sqrt{\operatorname{Tan}[c+d x]}}{d}+\frac{1}{64 b^{3/2} d}$$

$$\left(40 a^3 A b-320 a A b^3-5 a^4 B-240 a^2 b^2 B+128 b^4 B\right)\operatorname{ArcTanh}\left[\frac{\sqrt{b}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\sqrt{\operatorname{Tan}[c+d x]}-$$

$$\frac{(i a+b)^{5/2}(i A+B)\operatorname{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\sqrt{\operatorname{Tan}[c+d x]}}{d}+\frac{\left(40 a^2 A b-64 A b^3-5 a^3 B-112 a b^2 B\right)\sqrt{a+b \operatorname{Tan}[c+d x]}}{64 b d\sqrt{\operatorname{Cot}[c+d x]}}+$$

$$\frac{\left(40 a A b-5 a^2 B-48 b^2 B\right)(a+b \operatorname{Tan}[c+d x])^{3/2}}{96 b d\sqrt{\operatorname{Cot}[c+d x]}}+\frac{(8 A b-a B)(a+b \operatorname{Tan}[c+d x])^{5/2}}{24 b d\sqrt{\operatorname{Cot}[c+d x]}}+\frac{B(a+b \operatorname{Tan}[c+d x])^{7/2}}{4 b d\sqrt{\operatorname{Cot}[c+d x]}}$$

Result (type 4, 136 892 leaves) : Display of huge result suppressed!

- **Problem 636: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\operatorname{Cot}[c+d x]^{7/2}(A+B \operatorname{Tan}[c+d x])}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\,dx$$

Optimal (type 3, 296 leaves, 11 steps) :

$$\frac{(i A-B)\operatorname{ArcTan}\left[\frac{\sqrt{i a-b}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{i a-b}\, d}-$$

$$\frac{(i A+B)\operatorname{ArcTanh}\left[\frac{\sqrt{i a+b}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{a+b \operatorname{Tan}[c+d x]}}\right]\sqrt{\operatorname{Cot}[c+d x]}\sqrt{\operatorname{Tan}[c+d x]}}{\sqrt{i a+b}\, d}+\frac{2\left(15 a^2 A-8 A b^2+10 a b B\right)\sqrt{\operatorname{Cot}[c+d x]}\sqrt{a+b \operatorname{Tan}[c+d x]}}{15 a^3 d}+$$

$$\frac{2(4 A b-5 a B)\operatorname{Cot}[c+d x]^{3/2}\sqrt{a+b \operatorname{Tan}[c+d x]}}{15 a^2 d}-\frac{2 A \operatorname{Cot}[c+d x]^{5/2}\sqrt{a+b \operatorname{Tan}[c+d x]}}{5 a d}$$

Result (type 4, 4516 leaves) :

$$\left((B+A \operatorname{Cot}[c+d x])\left(\frac{4\left(9 a^2 A-4 A b^2+5 a b B\right)}{15 a^3}-\frac{2(-4 A b \operatorname{Cos}[c+d x]+5 a B \operatorname{Cos}[c+d x]) \operatorname{Csc}[c+d x]}{15 a^2}-\frac{2 A \operatorname{Csc}[c+d x]^2}{5 a}\right)\right.$$

$$\left.(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])\right)\Big/\left(d\sqrt{\operatorname{Cot}[c+d x]}(A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x])\sqrt{a+b \operatorname{Tan}[c+d x]}\right)-$$

$$\left(4 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}(B+A \operatorname{Cot}[c+d x])\right.$$

$$\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\left.\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left(-\frac{B\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\sqrt{\text{Cot}[c+d\,x]}\,\left(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x]\right)\right)$$

$$\left(\left(a\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\Bigg(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \Bigg(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A + i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\left(\text{i}\,B\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(A-\text{i}\,B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\text{i}\,B\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-\text{i}\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\sqrt{\text{Sec}[c+d\,x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+iB)\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-iB)\,\text{Sec}\left[\frac{1}{2}(c+dx)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+dx)\right]^{3/2}\right)\sqrt{a+b\,\text{Tan}[c+dx]}\right)$$

- **Problem 637: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+dx]^{5/2}\,(A+B\,\text{Tan}[c+dx])}{\sqrt{a+b\,\text{Tan}[c+dx]}}\,dx$$

Optimal (type 3, 243 leaves, 10 steps):

$$-\frac{(A+iB)\,\text{ArcTan}\left[\frac{\sqrt{ia-b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]\sqrt{\text{Cot}[c+dx]}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{ia-b}\,d}-\frac{(A-iB)\,\text{ArcTanh}\left[\frac{\sqrt{ia+b}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{a+b\,\text{Tan}[c+dx]}}\right]\sqrt{\text{Cot}[c+dx]}\,\sqrt{\text{Tan}[c+dx]}}{\sqrt{ia+b}\,d}+$$

$$\frac{2\,(2Ab-3aB)\,\sqrt{\text{Cot}[c+dx]}\,\sqrt{a+b\,\text{Tan}[c+dx]}}{3a^2d}-\frac{2A\,\text{Cot}[c+dx]^{3/2}\,\sqrt{a+b\,\text{Tan}[c+dx]}}{3ad}$$

Result (type 4, 4488 leaves):

$$\frac{(B+A\,\text{Cot}[c+dx])\left(-\frac{2(-2Ab+3aB)}{3a^2}-\frac{2A\,\text{Cot}[c+dx]}{3a}\right)(a\,\text{Cos}[c+dx]+b\,\text{Sin}[c+dx])}{d\sqrt{\text{Cot}[c+dx]}\,(A\,\text{Cos}[c+dx]+B\,\text{Sin}[c+dx])\sqrt{a+b\,\text{Tan}[c+dx]}}+$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}(c+dx)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+dx)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$(B+A\,\text{Cot}[c+dx])\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+dx)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(\mathrm{i}\,A+B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left.\left(-\frac{A\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{B\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,\sqrt{\text{Cot}[c+d\,x]}\;(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(-\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(-\mathrm{i}\,A\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$\mathrm{i}\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\Bigg(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\,\Bigg(-i A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$i(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\ \left(-i A\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +\right.$$

$$i\,(A+i B)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +$$

$$\left.(i A+B)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x])^{3/2}}\ 2\, \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b-\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \left(-i A\, \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] +\right.$$

$$i\,(A+i B)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] + (i A+B)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left. i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\ (b\, \text{Cos}[c+d x]-a\, \text{Sin}[c+d x])\, \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\left(-\text{i}\,A\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\text{i}\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(\text{i}\,A+B)\,\text{EllipticPi}\left[\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\text{i}\,A\,\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\text{i}\,(A+\text{i}\,B)\,\text{EllipticPi}\left[-\frac{\text{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \text{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\text{i}\,A+B)$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d x]}\ \text{Sin}\Big[\frac{1}{2}(c+d x)\Big]\ \text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\ 2\,\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\ \Bigg(-i\,A\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$i\,(A+i\,B)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(i\,A+B)$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\ \text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\ \text{Tan}\Big[\frac{1}{2}(c+d x)\Big]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\ 4\,\text{Cos}\Big[\frac{1}{2}(c+d x)\Big]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \left(-\frac{A\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{\mathrm{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(\mathrm{i}\,A+B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)$$

- **Problem 638: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 199 leaves, 9 steps):

$$-\frac{(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a-b}\,d}+$$

$$\frac{(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a+b}\,d}-\frac{2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}{a\,d}$$

Result (type 4, 4447 leaves):

$$-\frac{2\,A\,(B+A\,\mathrm{Cot}[c+d\,x])\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}+$$

$$\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,(B+A\,\mathrm{Cot}[c+d\,x])\right.$$

$$\left(\mathrm{i}\,B\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.$$

$$\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(A-i B)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)$$

$$\left(\frac{B\sqrt{\text{Cot}[c+d x]}}{\sqrt{\text{Sec}[c+d x]}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{A\sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\sqrt{\text{Cot}[c+d x]}\ (A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right)$$

$$\Bigg(-\Bigg(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \Bigg(i B\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(A+i B)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+$$

$$(A-i B)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d x]}\Bigg)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\,\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\;\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\ -$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\,\Bigg(i B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A + i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A - i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d x]}\,(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Csc}[c+d x]^2\,\Bigg(i B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(\mathrm{i}\,B\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\left(i\,B\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]^{3/2}\,\text{Sin}[c+d x]\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]}\,\sqrt{\text{Sec}[c+d x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,B\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{\mathrm{i}\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\right)$$

■ **Problem 639: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Cot}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 163 leaves, 8 steps):

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a-b}\,d}+\frac{(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a+b}\,d}$$

Result (type 4, 4378 leaves):

$$-\left(\left(4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$\mathrm{i}\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)$$

$$\left(\frac{A\sqrt{\text{Cot}[c+d\,x]}}{\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{B\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}$$

$$(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(\left(a\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.\right.$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(i\,A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left(\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(i\,A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\Bigg)\Big/$$

$$\left(\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,3\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-i\,A\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(i\,A+B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-i\,A\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(i\,A+B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\right.$$

$$\left.\left.i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2\left(-i\,A\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+\right.$$

$$i\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\Bigg(-\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\mathrm{i}\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(\mathrm{i}\,A+B)\,\mathrm{EllipticPi}\Bigg[$$

$$\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Bigg]\Bigg)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\,\Bigg(-\mathrm{i}\,A\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$i\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(i\,A+B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{A\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\left.\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(i\,A+B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\right)\right)$$

- **Problem 640: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 228 leaves, 13 steps):

$$\frac{(\mathrm{i} A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i} a-b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{\mathrm{i} a-b}\,d}+\frac{2 B\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{b}\,d}-\frac{(\mathrm{i} A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i} a+b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{\mathrm{i} a+b}\,d}$$

Result (type 4, 6452 leaves):

$$\left(4 a\,(B+A\,\mathrm{Cot}[c+d x])\left(\frac{B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{(A+\mathrm{i} B)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i} a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i} a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i} a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i} a+b+\sqrt{a^2+b^2}}+\frac{B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i} a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])$$

$$\left(\frac{B\sqrt{\mathrm{Cot}[c+d x]}\,\mathrm{Sec}[c+d x]^{3/2}}{2\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}-\frac{B\,\mathrm{Cos}[2(c+d x)]\sqrt{\mathrm{Cot}[c+d x]}\,\mathrm{Sec}[c+d x]^{3/2}}{2\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}+\frac{A\sqrt{\mathrm{Cot}[c+d x]}\,\mathrm{Sec}[c+d x]^{3/2}\,\mathrm{Sin}[2(c+d x)]}{2\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}\right)$$

$$\left.\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\;d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}\;(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right.$$

$$\left(\left(a^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\frac{B\,\mathtt{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathtt{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.\right.$$

$$\frac{(A+\mathrm{i}\,B)\,\mathtt{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathtt{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\mathtt{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathtt{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)+$$

$$\left(2\,a\sqrt{\text{Cot}[c+d\,x]}\ \left(\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{(A+iB)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\ (b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Big/\left(\sqrt{a^2+b^2}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\,\text{Csc}[c+d\,x]^2$$

$$\left(\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\;\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;-$$

$$\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{A\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a-\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\left.\frac{B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}}\,4\,a\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-\left(a\,B\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,(A+i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-i\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,A\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(i\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\,B\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a-i\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{i\,a+b+\sqrt{a^2+b^2}}\right)\Bigg)+$$

$$\left(a\,B\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\Bigg(4\sqrt{2}\sqrt{a^2+b^2}\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)$$

- **Problem 641: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{3/2}\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

Optimal (type 3, 266 leaves, 14 steps):

$$-\frac{(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\,d}+\frac{(2\,A\,b-a\,B)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{b^{3/2}\,d}-$$

$$\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\,d}+\frac{B\sqrt{a+b\,\text{Tan}[c+d\,x]}}{b\,d\sqrt{\text{Cot}[c+d\,x]}}$$

Result (type 4, 11682 leaves):

$$\frac{B\,(B+A\,\text{Cot}[c+d\,x])\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{b\,d\,\text{Cot}[c+d\,x]^{3/2}\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\sqrt{a+b\,\text{Tan}[c+d\,x]}}-$$

$$\left(\sqrt{2}\,\sqrt{a^2+b^2}\,\left(B+A\,\mathrm{Cot}[c+d\,x]\right)\right)\left(-B\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.$$

$$\frac{(2\,A\,b-a\,B)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,i\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\left(\frac{A\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a\,B\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\,b\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$

$$\left.\frac{A\,\text{Cos}[2\,(c+d\,x)]\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{B\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[2\,(c+d\,x)]}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\sqrt{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left.\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Bigg/$$

$$\left(b\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)$$

$$\left(\frac{1}{b\left(-2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\right)^2}\sqrt{2}\,\sqrt{a^2+b^2}\left(-B\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,i\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,i\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(-b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2+a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\ \sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)}{a^2+b^2}}$$

$$\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\ -\left(a\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\left(b\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(\sqrt{2}\, b \sqrt{a^2+b^2}\, \sqrt{\frac{a \left(a+2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{a^2+b^2}}\, \left(-2 b \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\left(a \sqrt{a^2+b^2}\, \left(-B \operatorname{EllipticF}\left[\operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2 A b-a B) \operatorname{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\, i\, A\, b \operatorname{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\, a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\, a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\, b\, B \operatorname{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\, a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-i\, a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\, i\, A\, b \operatorname{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\, a+b+\sqrt{a^2+b^2}}, \operatorname{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right], \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\, a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\left.\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\,\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\,\sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(2\sqrt{2}\,b\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\sqrt{a^2+b^2}\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left(-\frac{1}{2}\,\text{Csc}\left[\frac{1}{2}(c+d\,x)\right]^2-\frac{1}{2}\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left.\sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\right)\Big/$$

$$\left(\sqrt{2}\ b\sqrt{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\sqrt{a^2+b^2}\ \left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\ \text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathrm{i}\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathrm{i}\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\ \sqrt{\frac{a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}$$

$$\left.\left(\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}+\frac{\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\left(1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{\left(1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\ b\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\left(-2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\right)\right)-$$

$$\left(\sqrt{a^2+b^2}\left(-B\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]+\right.\right.$$

$$\frac{(2\,A\,b-a\,B)\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,\mathbb{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,\mathrm{i}\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\frac{2\,b\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}-$$

$$\frac{2\,A\,b\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{a\,B\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}}\ \sqrt{\frac{a\left(a+2\,b\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2\right)}{a^2+b^2}}\ \left(\frac{b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2-a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{1+\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^2}-\right.$$

$$\left.\left.\frac{\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2 \text{Tan}\left[\frac{1}{2}(c+d x)\right]\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{\left(1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)^2}\right)\right)\Big/$$

$$\left(\sqrt{2}\, b \sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)\right)-$$

$$\frac{1}{b\left(-2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]+a\left(-1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)\right)} \sqrt{2} \sqrt{a^2+b^2} \sqrt{\text{Cot}\left[\frac{1}{2}(c+d x)\right]-\text{Tan}\left[\frac{1}{2}(c+d x)\right]}$$

$$\sqrt{\frac{a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\frac{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1-\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}} \sqrt{\frac{a\left(a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2\right)}{a^2+b^2}}$$

$$\sqrt{\frac{a+2 b \text{Tan}\left[\frac{1}{2}(c+d x)\right]-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}{1+\text{Tan}\left[\frac{1}{2}(c+d x)\right]^2}}\left(\left(a B \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\right.$$

$$\left(4 \sqrt{2} \sqrt{a^2+b^2} \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)-$$

$$\left(a(2 A b-a B) \text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\right)\Big/\left(4 \sqrt{2} \sqrt{a^2+b^2}\left(-a+b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{2 \sqrt{a^2+b^2}}} \sqrt{1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a \text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\mathrm{i}\, a\, A\, b\, \mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-\mathrm{i}\, a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\, b\, B\, \mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-\mathrm{i}\, a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(\mathrm{i}\, a\, A\, b\, \mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}}\right)\right)-$$

$$\left(a\, b\, B\, \mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2\right)\Bigg/\left(2\,\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\, a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{2\,\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{\mathrm{i}\, a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,A\,b\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(2\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left.\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)-\left(a^2\,B\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\right.$$

$$\left.\left.\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\right)\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\,\Bigg)$$

- **Problem 642: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 316 leaves, 11 steps):

$$-\frac{(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}-\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}+$$

$$\frac{2\,b\,\left(5\,a^2\,A\,b+8\,A\,b^3-3\,a^3\,B-6\,a\,b^2\,B\right)}{3\,a^3\left(a^2+b^2\right)d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}+\frac{2\,(4\,A\,b-3\,a\,B)\,\sqrt{\text{Cot}[c+d\,x]}}{3\,a^2\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}-\frac{2\,A\,\text{Cot}[c+d\,x]^{3/2}}{3\,a\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4988 leaves):

$$\left(\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\right.$$

$$\left.\left(-\frac{2\,(-5\,A\,b+3\,a\,B)}{3\,a^3}-\frac{2\,A\,\text{Cot}[c+d\,x]}{3\,a^2}-\frac{2\,\left(-A\,b^4\,\text{Sin}[c+d\,x]+a\,b^3\,B\,\text{Sin}[c+d\,x]\right)}{a^3\,(a-i\,b)\,(a+i\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}\right)-\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\mathrm{Sec}[c+d\,x]\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])$$

$$\left(-\frac{a\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{b\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\left.\frac{A\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(A+B\,\mathrm{Tan}[c+d\,x])\right)\Bigg/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

$$\left(\left(i\,a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\left(i\,a\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\,\mathbb{i}\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left((a\,A+b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathbb{i}\,b)(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{(a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}2\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left((a\,A+b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-\mathbb{i}\,b)(A+\mathbb{i}\,B)\right.$$

$$\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2\Bigg((a\,A+b\,B)\,\text{EllipticF}\Big[i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathbb{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,A+b\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\Bigg)$$

- **Problem 643: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 256 leaves, 10 steps):

$$\frac{(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}-$$

$$\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}-\frac{2\,b\left(a^2\,A+2\,A\,b^2-a\,b\,B\right)}{a^2\left(a^2+b^2\right)d\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{a+b\,\text{Tan}[c+d\,x]}}-\frac{2\,A\sqrt{\text{Cot}[c+d\,x]}}{a\,d\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4969 leaves):

$$\left(\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2\left(-\frac{2\,A}{a^2}+\frac{2\left(-A\,b^3\,\text{Sin}[c+d\,x]+a\,b^2\,B\,\text{Sin}[c+d\,x]\right)}{a^2\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)+$$
$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\right.$$
$$\left(-\mathrm{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$
$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$
$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])$$
$$\left(-\frac{A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a\,B\,\sqrt{\text{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\right.$$
$$\left.\frac{a\,A\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$
$$\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}(A+B\,\text{Tan}[c+d\,x])\right)\Big/\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$-\left(\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\,(A\,b-a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left.\left(\left(a^2+b^2\right)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\left(-i\,(A\,b-a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^{3/2}}2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left(-\mathbb{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2$$

$$\left(-\mathbb{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}\left[\frac{1}{2}(c+d\,x)\right]\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(-i\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A\,b-a\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a+i\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\ (a+b\,\text{Tan}[c+d\,x])^{3/2}\Bigg)$$

- **Problem 644: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\text{Cot}[c+d\,x]}\ (A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 215 leaves, 9 steps) :

$$\frac{(\mathrm{i} A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i} a-b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{(\mathrm{i} a-b)^{3/2}\,d}+$$

$$\frac{(\mathrm{i} A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i} a+b}\,\sqrt{\mathrm{Tan}[c+d x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d x]}}\right]\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Tan}[c+d x]}}{(\mathrm{i} a+b)^{3/2}\,d}+\frac{2 b\,(A b-a B)}{a\left(a^2+b^2\right) d\,\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d x]}}$$

Result (type 4, 4931 leaves) :

$$-\left(2\sqrt{\mathrm{Cot}[c+d x]}\,\mathrm{Sec}[c+d x]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])\left(-A b^2\,\mathrm{Sin}[c+d x]+a b B\,\mathrm{Sin}[c+d x]\right)(A+B\,\mathrm{Tan}[c+d x])\right)\Big/$$
$$\left(a\,(a-\mathrm{i} b)\,(a+\mathrm{i} b)\,d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\,(a+b\,\mathrm{Tan}[c+d x])^{3/2}\right)+$$

$$\Bigg(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d x]}$$

$$\Bigg((a A+b B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i} b)\,(A+\mathrm{i} B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i} b)\,(A-\mathrm{i} B)$$

$$\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\mathrm{Sec}[c+d x]\,(a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x])$$

$$\Bigg(\frac{a A\sqrt{\mathrm{Cot}[c+d x]}}{(a-\mathrm{i} b)\,(a+\mathrm{i} b)\,\sqrt{\mathrm{Sec}[c+d x]}\,\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}+\frac{b B\sqrt{\mathrm{Cot}[c+d x]}}{(a-\mathrm{i} b)\,(a+\mathrm{i} b)\,\sqrt{\mathrm{Sec}[c+d x]}\,\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}-$$

$$\frac{A b\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Sec}[c+d x]}\,\mathrm{Sin}[c+d x]}{(a-\mathrm{i} b)\,(a+\mathrm{i} b)\,\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}+\frac{a B\sqrt{\mathrm{Cot}[c+d x]}\,\sqrt{\mathrm{Sec}[c+d x]}\,\mathrm{Sin}[c+d x]}{(a-\mathrm{i} b)\,(a+\mathrm{i} b)\,\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}}\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right)$$

$$\left(-\left(\left(\mathbb{i}\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left((a\,A+b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left.\left((a^2+b^2)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)\right)-$$

$$\left(\mathbb{i}\,a\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d\,x]}\left((a\,A+b\,B)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a - i b)\ (A + i B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a + i b)\ (A - i B)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \sqrt{\text{Sec}[c+d\,x]}\Bigg)\Bigg/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}\right) +$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\ 3\,i\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\ (c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\ \Bigg((a\,A+b\,B)\ \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a - i b)\ (A + i B)\ \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a + i b)\ (A - i B)\ \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\ \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}\ (c+d\,x)\right]} -$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^{3/2}}\,2\,\mathbb{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathbb{i}\,b)\,(A-\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}$$

$$2\,\mathbb{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2$$

$$\left((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left((a A+b B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)(A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right]\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\Bigg((a\,A+b\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\left(-\frac{\mathrm{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,A+b\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)$$

- **Problem 645: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 210 leaves, 9 steps):

$$-\frac{(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}+$$

$$\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}-\frac{2\,(A\,b-a\,B)}{\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 4928 leaves):

$$\left(2\,\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,(-A\,b\,\text{Sin}[c+d\,x]+a\,B\,\text{Sin}[c+d\,x])\,(A+B\,\text{Tan}[c+d\,x])\right)\Big/$$
$$\left((a-i\,b)\,(a+i\,b)\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\right)-$$

$$\left(4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(-i\,(A\,b-a\,B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+i\,b)\,(A-i\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d x]\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])$$

$$\left(\frac{A\,b\,\sqrt{\text{Cot}[c+d x]}}{(a-i b)(a+i b)\sqrt{\text{Sec}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}-\frac{a\,B\,\sqrt{\text{Cot}[c+d x]}}{(a-i b)(a+i b)\sqrt{\text{Sec}[c+d x]}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\right.$$

$$\left.\frac{a\,A\,\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-i b)(a+i b)\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}+\frac{b\,B\,\sqrt{\text{Cot}[c+d x]}\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]}{(a-i b)(a+i b)\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}}\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}(A+B\,\text{Tan}[c+d x])\right)\Bigg/\left((a^2+b^2)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d x]+B\,\text{Sin}[c+d x])\right.$$

$$\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\text{Cot}[c+d x]}\left(-i(A b-a B)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-i b)(A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i b)(A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d x]}\right)\Bigg/$$

$$\left((a^2+b^2)\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\mathrm{Cot}[c+d\,x]}\ \left(-i\,(A\,b-a\,B)\ \mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i\,b)\ (A+i\,B)\ \mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)\ (A-i\,B)\ \mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\ \sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\ 3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\ \left(-i\,(A\,b-a\,B)\ \mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)\ (A+i\,B)\ \mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]}\;+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(-\mathrm{i}\,(A\,b-a\,B)\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)$$

$$\text{EllipticPi}\Big[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]+(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\Big[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},$$

$$\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\Big[\frac{1}{2}(c+d\,x)\Big]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\Big[\frac{1}{2}(c+d\,x)\Big]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2\,\Bigg(-\mathrm{i}\,(A\,b-a\,B)\,\text{EllipticF}\Big[\mathrm{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(-\mathrm{i}\,(A\,b-a\,B)\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\left(-\mathrm{i}\,(A\,b-a\,B)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^{3/2}\,\mathrm{Sin}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Sec}[c+d\,x]}\left(-\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A\,b-a\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\frac{i\,(a+i\,b)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\left(1+i\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\Bigg)\,(a+b\,\text{Tan}[c+d\,x])^{3/2}\Bigg)$$

- **Problem 646: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 279 leaves, 14 steps):

$$-\frac{(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{3/2}\,d}+\frac{2\,B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{b^{3/2}\,d}-$$
$$\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{3/2}\,d}+\frac{2\,a\,(A\,b-a\,B)}{b\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 65 204 leaves): Display of huge result suppressed!

- **Problem 647: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{5/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 399 leaves, 12 steps):

$$\frac{(A+i\,B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}+$$
$$\frac{(A-i\,B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}+\frac{2\,b\,\left(7\,a^2\,A\,b+8\,A\,b^3-3\,a^3\,B-4\,a\,b^2\,B\right)}{3\,a^3\,\left(a^2+b^2\right)\,d\,\sqrt{\text{Cot}[c+d\,x]}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+$$
$$\frac{2\,(2\,A\,b-a\,B)\,\sqrt{\text{Cot}[c+d\,x]}}{a^2\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\,A\,\text{Cot}[c+d\,x]^{3/2}}{3\,a\,d\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}+\frac{2\,b\,\left(8\,a^4\,A\,b+30\,a^2\,A\,b^3+16\,A\,b^5-3\,a^5\,B-17\,a^3\,b^2\,B-8\,a\,b^4\,B\right)}{3\,a^4\,\left(a^2+b^2\right)^2\,d\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 5403 leaves):

$$\Bigg(\sqrt{\text{Cot}[c+d\,x]}\,\text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3$$

$$\left(-\frac{2\left(-8 a^4 A b-16 a^2 A b^3-9 A b^5+3 a^5 B+6 a^3 b^2 B+4 a b^4 B\right)}{3 a^4 (a-i b)^2 (a+i b)^2}-\frac{2 A \operatorname{Cot}[c+d x]}{3 a^3}+\frac{2 b^4 (-A b+a B)}{3 a^2 (a-i b)^2 (a+i b)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}-\right.$$

$$\left.\frac{2\left(-15 a^2 A b^4 \operatorname{Sin}[c+d x]-7 A b^6 \operatorname{Sin}[c+d x]+12 a^3 b^3 B \operatorname{Sin}[c+d x]+4 a b^5 B \operatorname{Sin}[c+d x]\right)}{3 a^4 (a-i b)^2 (a+i b)^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}\right)(A+B \operatorname{Tan}[c+d x])\Big/$$

$$\left(d (A \operatorname{Cos}[c+d x]+B \operatorname{Sin}[c+d x]) (a+b \operatorname{Tan}[c+d x])^{5/2}\right)-\left(4 i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]}\left(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+i b)^2 (A-i B)$$

$$\left.\operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \operatorname{Sec}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2$$

$$\left(-\frac{a^2 A \sqrt{\operatorname{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\frac{A b^2 \sqrt{\operatorname{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-\right.$$

$$\frac{2 a b B \sqrt{\operatorname{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\operatorname{Sec}[c+d x]} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\frac{2 a A b \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}-$$

$$\left.\frac{a^2 B \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}+\frac{b^2 B \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Sec}[c+d x]} \operatorname{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\right)$$

$$\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}(A+B\,\mathrm{Tan}[c+d x])\Bigg)\Bigg/\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;d\,(A\,\mathrm{Cos}[c+d x]+B\,\mathrm{Sin}[c+d x])\right.$$

$$\left(\left(i\,a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d x]}\left((a^2 A-A b^2+2 a b B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-i b)^2(A+i B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+i b)^2(A-i B)\,\mathrm{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d x]}\right)\Bigg/$$

$$\left((a^2+b^2)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d x]+b\,\mathrm{Sin}[c+d x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(i\,a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d x]}\left((a^2 A-A b^2+2 a b B)\,\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i b)^2(A+i B)\,\mathrm{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 (A-i B)\, \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) -$$

$$\frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x]}} 3 i \sqrt{\frac{b+\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 (A+i B)\, \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\, \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} +$$

$$\frac{1}{(a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} (a\, \text{Cos}[c+d x]+b\, \text{Sin}[c+d x])^{3/2}} 2 i\, \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\, \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2 A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}+\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\text{Csc}[c+d\,x]^2$$

$$\left(\left(a^2 A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+i b)^2 (A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} +$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}} 4 i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 (A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\,\text{Sin}\left[\frac{1}{2}(c+d x)\right] \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} -$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}} 2 i\,\text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\Big[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\Big[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathbb{i}\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(-\frac{\mathbb{i}\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a^2 A-A\,b^2+2\,a\,b\,B\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}\,(a-\mathbb{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathbb{i}\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-\mathbb{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{\mathbb{i}\,(a+\mathbb{i}\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-\mathbb{i}\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+\mathbb{i}\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 648: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^{3/2}\,(A+B\,\text{Tan}[c+d\,x])}{(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 341 leaves, 11 steps) :

$$\frac{(\mathrm{i}\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a-b)^{5/2}\,d}-\frac{(\mathrm{i}\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a+b)^{5/2}\,d}-$$
$$\frac{2\,b\,\left(3\,a^2\,A+4\,A\,b^2-a\,b\,B\right)}{3\,a^2\,\left(a^2+b^2\right)\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}}{a\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}-\frac{2\,b\,\left(3\,a^4\,A+17\,a^2\,A\,b^2+8\,A\,b^4-8\,a^3\,b\,B-2\,a\,b^3\,B\right)}{3\,a^3\,\left(a^2+b^2\right)^2\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5368 leaves) :

$$\Bigg(\sqrt{\mathrm{Cot}[c+d\,x]}\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3$$
$$\left(-\frac{2\,\left(3\,a^4\,A+6\,a^2\,A\,b^2+4\,A\,b^4-a\,b^3\,B\right)}{3\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}-\frac{2\,b^3\,(-A\,b+a\,B)}{3\,a\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$
$$\left.\frac{2\,\left(-12\,a^2\,A\,b^3\,\mathrm{Sin}[c+d\,x]-4\,A\,b^5\,\mathrm{Sin}[c+d\,x]+9\,a^3\,b^2\,B\,\mathrm{Sin}[c+d\,x]+a\,b^4\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)\,(A+B\,\mathrm{Tan}[c+d\,x])\Bigg)\Bigg/$$
$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)+\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\left(\mathrm{i}\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$
$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$
$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\,\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(-\frac{2\,a\,A\,b\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{a^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{b^2\,B\,\sqrt{\text{Cot}[c+d\,x]}}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{a^2\,A\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}+\frac{A\,b^2\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{2\,a\,b\,B\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]}{(a-i\,b)^2\,(a+i\,b)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\,(A+B\,\text{Tan}[c+d\,x])\right)\Bigg/\left((a^2+b^2)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\text{Cos}[c+d\,x]+B\,\text{Sin}[c+d\,x])\right.$$

$$\left(-\left(\left(a\,\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(i\,\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\right.\right.\right.\right.\right.$$

$$\left.\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\,\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\,\sqrt{\text{Sec}[c+d\,x]}\right)\Bigg/$$

$$\left.\left(\left(a^2+b^2\right)^2\,\left(b-\sqrt{a^2+b^2}\right)\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}\right)\right)-$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\;\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\ -$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^{3/2}}\,2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \Bigg(i\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i\,b)^2\,(A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i\,b)^2\,(A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\ i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}$$

$$2\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \text{Csc}[c+d\,x]^2$$

$$\left(\mathbb{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)\,\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \left(\mathbb{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\,\text{EllipticF}\left[\mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\ \mathbb{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\ \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\ \text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}} 2 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]} \left(\mathbb{i}\left(-2 a A b+a^2 B-b^2 B\right) \operatorname{EllipticF}\left[\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i} b)^2 (A-\mathbb{i} B)$$

$$\left.\operatorname{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \operatorname{Sec}[c+d x]^{3/2} \operatorname{Sin}[c+d x] \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}} 4 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\operatorname{Cot}[c+d x]} \sqrt{\operatorname{Sec}[c+d x]} \left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(-2 a A b+a^2 B-b^2 B\right) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4 \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}+\right.$$

$$\frac{\mathbb{i}(a-\mathbb{i} b)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}(A+\mathbb{i} B) \operatorname{Sec}\left[\frac{1}{2}(c+d x)\right]^2}{4\left(1-\mathbb{i} \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]\right) \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}}-$$

$$\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 649: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Cot}[c+d\,x]}\,(A+B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 287 leaves, 10 steps):

$$-\frac{(A+i\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}-\frac{(A-i\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}+$$
$$\frac{2\,b\,(A\,b-a\,B)}{3\,a\,(a^2+b^2)\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,b\,\left(8\,a^2\,A\,b+2\,A\,b^3-5\,a^3\,B+a\,b^2\,B\right)}{3\,a^2\,(a^2+b^2)^2\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5350 leaves):

$$\left(\sqrt{\mathrm{Cot}[c+d\,x]}\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(-\frac{2\,b^2\,(-A\,b+a\,B)}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2}+\frac{2\,b^2\,(-A\,b+a\,B)}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}-\right.\right.$$
$$\left.\left.\frac{2\left(-9\,a^2\,A\,b^2\,\mathrm{Sin}[c+d\,x]-A\,b^4\,\mathrm{Sin}[c+d\,x]+6\,a^3\,b\,B\,\mathrm{Sin}[c+d\,x]-2\,a\,b^3\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,a^2\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)+\left(4\,i\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$
$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\left[i\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \text{Sec}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2$$

$$\left(\frac{a^2 A \sqrt{\text{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} - \frac{A b^2 \sqrt{\text{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} + \right.$$

$$\frac{2 a b B \sqrt{\text{Cot}[c+d x]}}{(a-i b)^2 (a+i b)^2 \sqrt{\text{Sec}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} - \frac{2 a A b \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} +$$

$$\left.\frac{a^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} - \frac{b^2 B \sqrt{\text{Cot}[c+d x]} \sqrt{\text{Sec}[c+d x]} \text{Sin}[c+d x]}{(a-i b)^2 (a+i b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} (A+B \text{Tan}[c+d x])\right) \Big/ \left((a^2+b^2)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$\left(-\left(\left(i a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left((a^2 A - A b^2 + 2 a b B) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \right.\right.\right.\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left((a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\Bigg) \Bigg/$$

$$\left(\left(a^2+b^2\right)^2 \left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)\Bigg) -$$

$$\left(i a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \left(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.\left.(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right) \Bigg/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) +$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}} 3 i \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \right.$$

$$(a-i\,b)^2 (A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i\,b)^2 (A-i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}\,\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]} -$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(a\,\text{Cos}[c+d\,x] + b\,\text{Sin}[c+d\,x])^{3/2}}\, 2\,i\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\left(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - \right.$$

$$(a-i\,b)^2 (A+i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$\left.(a+i\,b)^2 (A-i\,B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d\,x]}$$

$$(b\,\mathrm{Cos}[c+d\,x]-a\,\mathrm{Sin}[c+d\,x])\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}$$

$$2\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(\left(a^2A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+\mathrm{i}\,b)^2(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a - i\,b)^2\,(A + i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a + i\,b)^2\,(A - i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\text{Sec}[c+d\,x]}\;\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2} +$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(\left(a^2\,A - A\,b^2 + 2\,a\,b\,B\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -\right.$$

$$(a - i\,b)^2\,(A + i\,B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a + i\,b)^2\,(A - i\,B)$$

$$\left.\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2} +$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,i\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \left(-\frac{i\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\ \text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\right)\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 650: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\sqrt{\text{Cot}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 284 leaves, 10 steps):

$$-\frac{(i\,A-B)\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}+\frac{(i\,A+B)\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\ \sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}-$$

$$\frac{2\,(A\,b-a\,B)}{3\left(a^2+b^2\right)d\sqrt{\text{Cot}[c+d\,x]}\ (a+b\,\text{Tan}[c+d\,x])^{3/2}}-\frac{2\left(5\,a^2\,A\,b-A\,b^3-2\,a^3\,B+4\,a\,b^2\,B\right)}{3\,a\left(a^2+b^2\right)^2d\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{a+b\,\text{Tan}[c+d\,x]}}$$

Result (type 4, 5338 leaves):

$$\left(\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^3\left(\frac{2\,b\,(-A\,b+a\,B)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2}-\frac{2\,a\,b\,(-A\,b+a\,B)}{3\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])^2}+\right.\right.$$

$$\left.\frac{2\left(-6\,a^2\,A\,b\,\text{Sin}[c+d\,x]+2\,A\,b^3\,\text{Sin}[c+d\,x]+3\,a^3\,B\,\text{Sin}[c+d\,x]-5\,a\,b^2\,B\,\text{Sin}[c+d\,x]\right)}{3\,a\,(a-i\,b)^2\,(a+i\,b)^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}\right)(A+B\,\text{Tan}[c+d\,x])\Bigg)\Bigg/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)-\left(4\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathbb{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i}\,b)^2\,(A+\mathbb{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i}\,b)^2\,(A-\mathbb{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathbb{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(\frac{2\,a\,A\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\frac{a^2\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\right.$$

$$\frac{b^2\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{a^2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\left.\frac{A\,b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{2\,a\,b\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}\right)$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}(A+B\,\mathrm{Tan}[c+d\,x])\right)\Bigg/\left(\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\right)$$

$$\left(\left(a\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left(\left(a^2+b^2\right)^2\left(b-\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)+$$

$$\left(a\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$\left.\left.(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\right)\Big/$$

$$\left((a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}\right)-$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}3\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}+$$

$$\frac{1}{(a^2+b^2)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^{3/2}}2\,\mathrm{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{\mathrm{Cot}[c+d\,x]}\left(\mathrm{i}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}$$

$$(b \text{Cos}[c+d x]-a \text{Sin}[c+d x]) \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{\text{Cot}[c+d x]} \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}$$

$$2 \text{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}} \text{Csc}[c+d x]^2$$

$$\Bigg(i\left(-2 a A b+a^2 B-b^2 B\right) \text{EllipticF}\left[i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-i b)^2 (A+i B) \text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+$$

$$(a+i b)^2 (A-i B) \text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\ 4 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right] \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\operatorname{Cot}[c+d x]}\ \left(\mathbb{i}\left(-2 a A b+a^2 B-b^2 B\right) \operatorname{EllipticF}\left[\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i} b)^2 (A-\mathbb{i} B)$$

$$\left.\operatorname{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}\ \operatorname{Sin}\left[\frac{1}{2}(c+d x)\right] \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}\ 2 \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\operatorname{Cot}[c+d x]}\ \left(\mathbb{i}\left(-2 a A b+a^2 B-b^2 B\right) \operatorname{EllipticF}\left[\mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \operatorname{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]+(a+\mathbb{i} b)^2 (A-\mathbb{i} B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}}\right],\, \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\left(\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\left(-2\,a\,A\,b+a^2\,B-b^2\,B\right)\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{i\,(a-i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1-i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}-$$

$$\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2}{4\left(1+i\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}}\right)\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]^{3/2}\Bigg)\,(a+b\,\text{Tan}[c+d\,x])^{5/2}\Bigg)$$

- **Problem 651: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 284 leaves, 10 steps):

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a-b)^{5/2}\,d}+\frac{(A-\mathrm{i}\,B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(\mathrm{i}\,a+b)^{5/2}\,d}+$$

$$\frac{2\,a\,(A\,b-a\,B)}{3\,b\,\left(a^2+b^2\right)\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,\left(2\,a^2\,A\,b-4\,A\,b^3+a^3\,B+7\,a\,b^2\,B\right)}{3\,b\,\left(a^2+b^2\right)^2\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 5323 leaves):

$$\left(\sqrt{\mathrm{Cot}[c+d\,x]}\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\left(-\frac{2\,(-A\,b+a\,B)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2}+\frac{2\,a^2\,(-A\,b+a\,B)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.\right.$$

$$\left.\left.\frac{2\,\left(3\,a^2\,A\,\mathrm{Sin}[c+d\,x]-5\,A\,b^2\,\mathrm{Sin}[c+d\,x]+8\,a\,b\,B\,\mathrm{Sin}[c+d\,x]\right)}{3\,(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}\right)(A+B\,\mathrm{Tan}[c+d\,x])\right)\Big/$$

$$\left(d\,(A\,\mathrm{Cos}[c+d\,x]+B\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)-\left(4\,\mathrm{i}\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\mathrm{Cot}[c+d\,x]}\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2$$

$$\left(-\frac{a^2\,A\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{A\,b^2\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-\right.$$

$$\frac{2\,a\,b\,B\,\sqrt{\mathrm{Cot}[c+d\,x]}}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}+\frac{2\,a\,A\,b\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Sec}[c+d\,x]}\,\mathrm{Sin}[c+d\,x]}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}}-$$

$$\frac{a^2 B \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{(a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}+\frac{b^2 B \sqrt{\text{Cot}[c+d x]}\ \sqrt{\text{Sec}[c+d x]}\ \text{Sin}[c+d x]}{(a-\mathbb{i} b)^2 (a+\mathbb{i} b)^2 \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}}\Bigg)$$

$$\left.\text{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2} (A+B \text{Tan}[c+d x])\right)\Bigg/\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ d\ (A \text{Cos}[c+d x]+B \text{Sin}[c+d x])\right)$$

$$\left(\left(\mathbb{i} a \sqrt{\frac{b+\sqrt{a^2+b^2}+a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \left(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[\mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.\right.$$

$$(a-\mathbb{i} b)^2 (A+\mathbb{i} B) \text{EllipticPi}\left[-\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.\left.(a+\mathbb{i} b)^2 (A-\mathbb{i} B) \text{EllipticPi}\left[\frac{\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}{a}, \mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\text{Sec}[c+d x]}\right)\Bigg/$$

$$\left(\left(a^2+b^2\right)^2 \left(b-\sqrt{a^2+b^2}\right) \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{a \text{Cos}[c+d x]+b \text{Sin}[c+d x]}\ \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right)+$$

$$\left(\mathbb{i} a \sqrt{1+\frac{a \text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\text{Cot}[c+d x]}\ \left(\left(a^2 A-A b^2+2 a b B\right) \text{EllipticF}\left[\mathbb{i} \text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$(a-i b)^2 (A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a+i b)^2 (A-i B)\,\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]}\Bigg) \Big/$$

$$\left(\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \left(b+\sqrt{a^2+b^2}\right) \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}\right) -$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}} \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}} 3 i \sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}} \sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}$$

$$\sqrt{\text{Cot}[c+d x]} \Bigg(\left(a^2 A - A b^2 + 2 a b B\right) \text{EllipticF}\left[i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] -$$

$$(a-i b)^2 (A+i B)\,\text{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right] - (a+i b)^2 (A-i B)$$

$$\text{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg) \sqrt{\text{Sec}[c+d x]} \sqrt{\text{Tan}\left[\frac{1}{2}(c+d x)\right]} +$$

$$\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^{3/2}}\ 2 \, i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \sqrt{\operatorname{Cot}[c+d x]}\ \left(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-i b)^2 (A+i B) \operatorname{EllipticPi}\left[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$\left.(a+i b)^2 (A-i B) \operatorname{EllipticPi}\left[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a}, i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right) \sqrt{\operatorname{Sec}[c+d x]}$$

$$(b \operatorname{Cos}[c+d x]-a \operatorname{Sin}[c+d x]) \operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]^{3/2}+\frac{1}{\left(a^2+b^2\right)^2 \sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\ \sqrt{\operatorname{Cot}[c+d x]}\ \sqrt{a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]}}$$

$$2 \, i \operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]^2 \sqrt{\frac{b+\sqrt{a^2+b^2}+a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\ \sqrt{1+\frac{a \operatorname{Cot}\left[\frac{1}{2}(c+d x)\right]}{b-\sqrt{a^2+b^2}}}\ \operatorname{Csc}[c+d x]^2$$

$$\left(\left(a^2 A-A b^2+2 a b B\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\operatorname{Tan}\left[\frac{1}{2}(c+d x)\right]}}\right], \frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)\,\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}+$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\Bigg)\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,2\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\left(\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$(a-\mathrm{i}\,b)^2\,(A+\mathrm{i}\,B)\,\text{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-(a+\mathrm{i}\,b)^2\,(A-\mathrm{i}\,B)$$

$$\left.\text{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\;\mathrm{i}\,\text{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\;\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]\,\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}-$$

$$\frac{1}{\left(a^2+b^2\right)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\;\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\,4\,\mathrm{i}\,\text{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b+\sqrt{a^2+b^2}+a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{\text{Cot}[c+d\,x]}\;\sqrt{\text{Sec}[c+d\,x]}\;\left(-\frac{\mathrm{i}\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,\left(a^2\,A-A\,b^2+2\,a\,b\,B\right)\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\,\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+\right.$$

$$\frac{\mathrm{i}\,(a-\mathrm{i}\,b)^2\,\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A+\mathrm{i}\,B)\,\text{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1-\mathrm{i}\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\text{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\text{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}+$$

$$\left.\left.\left.\frac{i\,(a+i\,b)^2\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\,(A-i\,B)\,\mathrm{Sec}\left[\frac{1}{2}\,(c+d\,x)\right]^2}{4\left(1+i\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]\right)\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}\right)(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}\right)$$

- **Problem 652: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[c+d\,x]}{\mathrm{Cot}[c+d\,x]^{5/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{5/2}}\,dx$$

Optimal (type 3, 342 leaves, 15 steps) :

$$\frac{(i\,A-B)\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a-b)^{5/2}\,d}+$$
$$\frac{2\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{b^{5/2}\,d}-\frac{(i\,A+B)\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{(i\,a+b)^{5/2}\,d}+$$
$$\frac{2\,a\,(A\,b-a\,B)}{3\,b\,\left(a^2+b^2\right)\,d\,\mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}+\frac{2\,a\,\left(2\,A\,b^3-a\,\left(a^2+3\,b^2\right)\,B\right)}{b^2\,\left(a^2+b^2\right)^2\,d\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}$$

Result (type 4, 97 014 leaves) : Display of huge result suppressed !

- **Problem 653: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\sqrt{\mathrm{Cot}[c+d\,x]}\,(a\,B+b\,B\,\mathrm{Tan}[c+d\,x])}{(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 151 leaves, 9 steps) :

$$\frac{B\,\mathrm{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\,d}+\frac{B\,\mathrm{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\,d}$$

Result (type 4, 431 leaves) :

$$\frac{1}{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}\; d\,\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\,4\,\mathrm{i}\,B\,\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]^2\sqrt{\frac{b-\sqrt{a^2+b^2}+a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\;\sqrt{1+\frac{a\,\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\sqrt{\mathrm{Cot}[c+d\,x]}$$

$$\left(\mathrm{EllipticF}\left[\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.$$

$$\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\frac{\sqrt{\frac{a}{b+\sqrt{a^2+b^2}}}}{\sqrt{\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]^{3/2}$$

- **Problem 654: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a\,B+b\,B\,\mathrm{Tan}[c+d\,x]}{\sqrt{\mathrm{Cot}[c+d\,x]}\;(a+b\,\mathrm{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 157 leaves, 9 steps) :

$$\frac{\mathrm{i}\,B\,\mathrm{ArcTan}\left[\frac{\sqrt{\mathrm{i}\,a-b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a-b}\;d}-\frac{\mathrm{i}\,B\,\mathrm{ArcTanh}\left[\frac{\sqrt{\mathrm{i}\,a+b}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\;\sqrt{\mathrm{Tan}[c+d\,x]}}{\sqrt{\mathrm{i}\,a+b}\;d}$$

Result (type 4, 2641 leaves) :

$$\left(2\,B\left(\mathrm{EllipticPi}\left[-\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]-\right.\right.$$

$$\left.\left.\mathrm{EllipticPi}\left[\frac{\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}{a},\,\mathrm{i}\,\mathrm{ArcSinh}\left[\sqrt{-\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\right]\right)\sqrt{\mathrm{Sec}[c+d\,x]}\;\mathrm{Sin}[c+d\,x]\;\sqrt{1+\frac{a\,\mathrm{Tan}\left[\frac{1}{2}\,(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\right)\Big/$$

$$\left(d\,\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\mathrm{Cot}\left[\frac{1}{2}\,(c+d\,x)\right]}}\;\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\right.$$

$$\Bigg(\Bigg(a\sqrt{\text{Cot}[c+d x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}\Big[\frac{1}{2}(c+d x)\Big]^2\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]\Bigg)\Big/$$

$$\Bigg(2\left(-b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d x)\right]}}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)-$$

$$\Bigg(\sqrt{\text{Cot}[c+d x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{\text{Sec}[c+d x]}\,\text{Sin}[c+d x]$$

$$(b\,\text{Cos}[c+d x]-a\,\text{Sin}[c+d x])\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Big/\Bigg(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d x)\right]}}\,(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^{3/2}\Bigg)+$$

$$\Bigg(2\sqrt{\text{Cot}[c+d x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{i\left(b+\sqrt{a^2+b^2}\right)}{a},\,i\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Big/$$

$$\Bigg(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d x)\right]}}\,\sqrt{\text{Sec}[c+d x]}\,\sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\Bigg)-$$

$$\Bigg(\text{Csc}[c+d\,x]\,\Bigg(\text{EllipticPi}\Big[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\,\sqrt{1+\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\Bigg(\sqrt{\frac{a}{a-\big(b+\sqrt{a^2+b^2}\big)\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}}\,\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)+\Bigg(a\,\big(b+\sqrt{a^2+b^2}\big)\,\sqrt{\text{Cot}[c+d\,x]}$$

$$\text{Csc}\Big[\frac{1}{2}\,(c+d\,x)\Big]^2\,\Bigg(\text{EllipticPi}\Big[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-\text{EllipticPi}\Big[$$

$$\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/$$

$$\Bigg(2\,\Bigg(\frac{a}{a-\big(b+\sqrt{a^2+b^2}\big)\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}\Bigg)^{3/2}\,\Big(a-\big(b+\sqrt{a^2+b^2}\big)\,\text{Cot}\Big[\frac{1}{2}\,(c+d\,x)\Big]\Big)^2\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)+$$

$$\Bigg(\sqrt{\text{Cot}[c+d\,x]}\,\Bigg(\text{EllipticPi}\Big[-\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]-$$

$$\text{EllipticPi}\Big[\frac{\mathbb{i}\,\big(b+\sqrt{a^2+b^2}\big)}{a},\,\mathbb{i}\,\text{ArcSinh}\Big[\sqrt{-\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{b+\sqrt{a^2+b^2}}}\Big],\,\frac{b+\sqrt{a^2+b^2}}{b-\sqrt{a^2+b^2}}\Big]\Bigg)\,\text{Sec}[c+d\,x]^{3/2}$$

$$\text{Sin}[c+d\,x]^2\,\sqrt{1+\frac{a\,\text{Tan}\big[\frac{1}{2}\,(c+d\,x)\big]}{-b+\sqrt{a^2+b^2}}}\Bigg)\Bigg/\Bigg(\sqrt{\frac{a}{a-\big(b+\sqrt{a^2+b^2}\big)\,\text{Cot}\big[\frac{1}{2}\,(c+d\,x)\big]}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\Bigg)+$$

$$\left(2\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Sec}[c+d\,x]}\,\text{Sin}[c+d\,x]\,\sqrt{1+\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-b+\sqrt{a^2+b^2}}}\,\left(\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/\left(4\left(b+\sqrt{a^2+b^2}\right)\right.\right.\right.$$

$$\left(1-i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)-\left(i\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Big/$$

$$\left.\left.\left(4\left(b+\sqrt{a^2+b^2}\right)\left(1+i\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]\right)\sqrt{-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b-\sqrt{a^2+b^2}}}\,\sqrt{1-\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\right)\right)\Big/$$

$$\left(\sqrt{\frac{a}{a-\left(b+\sqrt{a^2+b^2}\right)\text{Cot}\left[\frac{1}{2}(c+d\,x)\right]}}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\right)\right)\sqrt{a+b\,\text{Tan}[c+d\,x]}\Bigg)$$

- **Problem 655: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{a\,B+b\,B\,\text{Tan}[c+d\,x]}{\text{Cot}[c+d\,x]^{3/2}\,(a+b\,\text{Tan}[c+d\,x])^{3/2}}\,dx$$

Optimal (type 3, 215 leaves, 14 steps):

$$-\frac{B\,\text{ArcTan}\left[\frac{\sqrt{i\,a-b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a-b}\,d}+$$

$$\frac{2\,B\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{b}\,d}-\frac{B\,\text{ArcTanh}\left[\frac{\sqrt{i\,a+b}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\right]\sqrt{\text{Cot}[c+d\,x]}\,\sqrt{\text{Tan}[c+d\,x]}}{\sqrt{i\,a+b}\,d}$$

Result (type 4, 5277 leaves):

$$-\left(\left(4\,a\,B\sqrt{\text{Cot}[c+d\,x]}\right.\right.$$

$$\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)}-\right.$$

$$\left.\frac{\mathrm{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}+\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\text{Sec}[c+d\,x]\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\left(\frac{\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}-\frac{\text{Cos}[2\,(c+d\,x)]\,\sqrt{\text{Cot}[c+d\,x]}\ \text{Sec}[c+d\,x]^{3/2}}{2\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}}\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\ d\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\,(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}\right.$$

$$\left(-\left(\left(a^2\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\left.\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2\sqrt{\text{Sec}[c+d x]}\ \sqrt{a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]}\right)\Big/$$

$$\left(\sqrt{a^2+b^2}\left(b+\sqrt{a^2+b^2}\right)\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d x)\right]^2(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])}{a^2+b^2}}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d x)\right]}{b+\sqrt{a^2+b^2}}}\right)\right)-$$

$$\left(2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\text{Sec}[c+d\,x]}\,\left(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x]\right)$$

$$\left.\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\right)\Bigg/\left(\sqrt{a^2+b^2}\,\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)}{a^2+b^2}}\right)+$$

$$\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\mathrm{Cot}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}}\,2\,a\,\mathrm{Csc}[c+d\,x]^2$$

$$\left(-\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\mathrm{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\sqrt{\mathrm{Sec}[c+d\,x]}$$

$$\sqrt{a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}-\frac{1}{\sqrt{a^2+b^2}\,\sqrt{\frac{a\,\mathrm{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}{a^2+b^2}}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+i\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{i\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{i\,a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{i\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\,\text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\,\frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)\text{Sec}[c+d\,x]^{3/2}\,\text{Sin}[c+d\,x]$$

$$\sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\,\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}+\frac{1}{\sqrt{a^2+b^2}\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}\right)^{3/2}}$$

$$2\,a\,\sqrt{\text{Cot}[c+d\,x]}\left(-\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{-a+b+\sqrt{a^2+b^2}}-\right.$$

$$\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{-\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+\mathbb{i}\left(b+\sqrt{a^2+b^2}\right)}-$$

$$\frac{\mathbb{i}\,\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{\mathbb{i}\,a+b+\sqrt{a^2+b^2}}+$$

$$\left.\frac{\text{EllipticPi}\left[\frac{2\sqrt{a^2+b^2}}{a+b+\sqrt{a^2+b^2}},\ \text{ArcSin}\left[\frac{\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}}{\sqrt{2}}\right],\ \frac{2\sqrt{a^2+b^2}}{b+\sqrt{a^2+b^2}}\right]}{a+b+\sqrt{a^2+b^2}}\right)$$

$$\sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}\ \sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}$$

$$\left(\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(b\,\text{Cos}[c+d\,x]-a\,\text{Sin}[c+d\,x])}{a^2+b^2}+\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a^2+b^2}\right)-$$

$$\frac{1}{\sqrt{a^2+b^2}\ \sqrt{\frac{a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x])}{a^2+b^2}}}\,4\,a\,\sqrt{\text{Cot}[c+d\,x]}\ \sqrt{\text{Sec}[c+d\,x]}\ \sqrt{a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]}$$

$$\sqrt{\frac{a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(-a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+\mathrm{i}\left(b+\sqrt{a^2+b^2}\right)\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{-\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)+$$

$$\left(\mathrm{i}\,a\,\text{Sec}\left[\frac{1}{2}(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(\mathrm{i}\,a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\right.$$

$$\left.\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\;\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\mathrm{i}\,a+b+\sqrt{a^2+b^2}}\right)\right)-\left(a\,\text{Sec}\left[\frac{1}{2}\right.\right.$$

$$\left.\left.(c+d\,x)\right]^2\right)\Bigg/\left(4\sqrt{2}\,\sqrt{a^2+b^2}\,\left(a+b+\sqrt{a^2+b^2}\right)\sqrt{\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{\sqrt{a^2+b^2}}}\;\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\text{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{2\sqrt{a^2+b^2}}}\right.$$

$$\sqrt{1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{b+\sqrt{a^2+b^2}}}\left(1-\frac{b+\sqrt{a^2+b^2}-a\,\mathrm{Tan}\left[\frac{1}{2}(c+d\,x)\right]}{a+b+\sqrt{a^2+b^2}}\right)\Bigg)\Bigg)\Bigg)\Bigg/\sqrt{a+b\,\mathrm{Tan}[c+d\,x]}\Bigg)\Bigg)$$

Problem 656: Unable to integrate problem.

$$\int \mathrm{Cot}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 195 leaves, 8 steps):

$$\frac{1}{2\,d\,(1-m)}(A+i\,B)\,\mathrm{AppellF1}\left[1-m,\,-n,\,1,\,2-m,\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\,-i\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Cot}[c+d\,x]^{-1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}+$$
$$\frac{1}{2\,d\,(1-m)}(A-i\,B)\,\mathrm{AppellF1}\left[1-m,\,-n,\,1,\,2-m,\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a},\,i\,\mathrm{Tan}[c+d\,x]\right]\mathrm{Cot}[c+d\,x]^{-1+m}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}$$

Result (type 8, 33 leaves):

$$\int \mathrm{Cot}[c+d\,x]^m\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 657: Unable to integrate problem.

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 169 leaves, 10 steps):

$$-\frac{1}{d}(A+i\,B)\,\mathrm{AppellF1}\left[-\frac{1}{2},\,1,\,-n,\,\frac{1}{2},\,-i\,\mathrm{Tan}[c+d\,x],\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}-$$
$$\frac{1}{d}(A-i\,B)\,\mathrm{AppellF1}\left[-\frac{1}{2},\,1,\,-n,\,\frac{1}{2},\,i\,\mathrm{Tan}[c+d\,x],\,-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}$$

Result (type 8, 35 leaves):

$$\int \mathrm{Cot}[c+d\,x]^{3/2}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Problem 658: Unable to integrate problem.

$$\int \sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,dx$$

Optimal (type 6, 167 leaves, 10 steps):

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{1}{2},1,-n,\frac{3}{2},-\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}+$$
$$\frac{(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{1}{2},1,-n,\frac{3}{2},\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\mathrm{Cot}[c+d\,x]}}$$

Result (type 8, 35 leaves) :

$$\int\sqrt{\mathrm{Cot}[c+d\,x]}\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])\,\mathrm{d}x$$

- **Problem 659: Unable to integrate problem.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,\mathrm{d}x$$

Optimal (type 6, 173 leaves, 10 steps) :

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{3}{2},1,-n,\frac{5}{2},-\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{3\,d\,\mathrm{Cot}[c+d\,x]^{3/2}}+$$
$$\frac{(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{3}{2},1,-n,\frac{5}{2},\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{3\,d\,\mathrm{Cot}[c+d\,x]^{3/2}}$$

Result (type 8, 35 leaves) :

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\sqrt{\mathrm{Cot}[c+d\,x]}}\,\mathrm{d}x$$

- **Problem 660: Unable to integrate problem.**

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Cot}[c+d\,x]^{3/2}}\,\mathrm{d}x$$

Optimal (type 6, 173 leaves, 10 steps) :

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},-\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{5\,d\,\mathrm{Cot}[c+d\,x]^{5/2}}+$$
$$\frac{(A-\mathrm{i}\,B)\,\mathrm{AppellF1}\left[\frac{5}{2},1,-n,\frac{7}{2},\mathrm{i}\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{5\,d\,\mathrm{Cot}[c+d\,x]^{5/2}}$$

Result (type 8, 35 leaves) :

$$\int\frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Cot}[c+d\,x]^{3/2}}\,\mathrm{d}x$$

Problem 661: Unable to integrate problem.

$$\int \text{Tan}[c+d x]^{3/2} (a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])\, dx$$

Optimal (type 6, 173 leaves, 9 steps):

$$\frac{1}{5 d}(A+i B)\,\text{AppellF1}\left[\frac{5}{2}, 1, -n, \frac{7}{2}, -i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{5/2} (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n} + \frac{1}{5 d}(A-i B)\,\text{AppellF1}\left[\frac{5}{2}, 1, -n, \frac{7}{2}, i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{5/2} (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n}$$

Result (type 8, 35 leaves):

$$\int \text{Tan}[c+d x]^{3/2} (a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])\, dx$$

Problem 662: Unable to integrate problem.

$$\int \sqrt{\text{Tan}[c+d x]}\, (a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])\, dx$$

Optimal (type 6, 173 leaves, 9 steps):

$$\frac{1}{3 d}(A+i B)\,\text{AppellF1}\left[\frac{3}{2}, 1, -n, \frac{5}{2}, -i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{3/2} (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n} + \frac{1}{3 d}(A-i B)\,\text{AppellF1}\left[\frac{3}{2}, 1, -n, \frac{5}{2}, i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^{3/2} (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n}$$

Result (type 8, 35 leaves):

$$\int \sqrt{\text{Tan}[c+d x]}\, (a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])\, dx$$

Problem 663: Unable to integrate problem.

$$\int \frac{(a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])}{\sqrt{\text{Tan}[c+d x]}}\, dx$$

Optimal (type 6, 167 leaves, 9 steps):

$$\frac{1}{d}(A+i B)\,\text{AppellF1}\left[\frac{1}{2}, 1, -n, \frac{3}{2}, -i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \sqrt{\text{Tan}[c+d x]}\, (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n} + \frac{1}{d}(A-i B)\,\text{AppellF1}\left[\frac{1}{2}, 1, -n, \frac{3}{2}, i\,\text{Tan}[c+d x], -\frac{b\,\text{Tan}[c+d x]}{a}\right] \sqrt{\text{Tan}[c+d x]}\, (a+b\,\text{Tan}[c+d x])^n \left(1+\frac{b\,\text{Tan}[c+d x]}{a}\right)^{-n}$$

Result (type 8, 35 leaves):

$$\int \frac{(a+b\,\text{Tan}[c+d x])^n (A+B\,\text{Tan}[c+d x])}{\sqrt{\text{Tan}[c+d x]}}\, dx$$

Problem 664: Unable to integrate problem.

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{3/2}}\,dx$$

Optimal (type 6, 169 leaves, 9 steps):

$$-\frac{(A+i\,B)\,\mathrm{AppellF1}\left[-\frac{1}{2},1,-n,\frac{1}{2},-i\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\mathrm{Tan}[c+d\,x]}}-\frac{(A-i\,B)\,\mathrm{AppellF1}\left[-\frac{1}{2},1,-n,\frac{1}{2},i\,\mathrm{Tan}[c+d\,x],-\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right]\,(a+b\,\mathrm{Tan}[c+d\,x])^n\,\left(1+\frac{b\,\mathrm{Tan}[c+d\,x]}{a}\right)^{-n}}{d\,\sqrt{\mathrm{Tan}[c+d\,x]}}$$

Result (type 8, 35 leaves):

$$\int \frac{(a+b\,\mathrm{Tan}[c+d\,x])^n\,(A+B\,\mathrm{Tan}[c+d\,x])}{\mathrm{Tan}[c+d\,x]^{3/2}}\,dx$$

Problem 666: Result more than twice size of optimal antiderivative.

$$\int (a+i\,a\,\mathrm{Tan}[e+f\,x])\,(A+B\,\mathrm{Tan}[e+f\,x])\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^4\,dx$$

Optimal (type 3, 59 leaves, 3 steps):

$$\frac{a\,(i\,A+B)\,c^4\,(1-i\,\mathrm{Tan}[e+f\,x])^4}{4\,f}-\frac{a\,B\,c^4\,(1-i\,\mathrm{Tan}[e+f\,x])^5}{5\,f}$$

Result (type 3, 226 leaves):

$$\frac{1}{40\,f}\,a\,c^4\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^5\,(5\,(-5\,i\,A+3\,B)\,\mathrm{Cos}[f\,x]+5\,(-5\,i\,A+3\,B)\,\mathrm{Cos}[2\,e+f\,x]-10\,i\,A\,\mathrm{Cos}[2\,e+3\,f\,x]+10\,B\,\mathrm{Cos}[2\,e+3\,f\,x]-10\,i\,A\,\mathrm{Cos}[4\,e+3\,f\,x]+10\,B\,\mathrm{Cos}[4\,e+3\,f\,x]+25\,A\,\mathrm{Sin}[f\,x]+15\,i\,B\,\mathrm{Sin}[f\,x]-25\,A\,\mathrm{Sin}[2\,e+f\,x]-15\,i\,B\,\mathrm{Sin}[2\,e+f\,x]+15\,A\,\mathrm{Sin}[2\,e+3\,f\,x]+5\,i\,B\,\mathrm{Sin}[2\,e+3\,f\,x]-10\,A\,\mathrm{Sin}[4\,e+3\,f\,x]-10\,i\,B\,\mathrm{Sin}[4\,e+3\,f\,x]+5\,A\,\mathrm{Sin}[4\,e+5\,f\,x]+3\,i\,B\,\mathrm{Sin}[4\,e+5\,f\,x])$$

Problem 667: Result more than twice size of optimal antiderivative.

$$\int (a+i\,a\,\mathrm{Tan}[e+f\,x])\,(A+B\,\mathrm{Tan}[e+f\,x])\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^3\,dx$$

Optimal (type 3, 59 leaves, 3 steps):

$$\frac{a\,(i\,A+B)\,c^3\,(1-i\,\mathrm{Tan}[e+f\,x])^3}{3\,f}-\frac{a\,B\,c^3\,(1-i\,\mathrm{Tan}[e+f\,x])^4}{4\,f}$$

Result (type 3, 161 leaves):

$$\frac{1}{12\,f}a\,c^3\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^4\\ (3\,(-2\,i\,A+B)\,\text{Cos}[e]+3\,(-i\,A+B)\,\text{Cos}[e+2\,f\,x]-3\,i\,A\,\text{Cos}[3\,e+2\,f\,x]+3\,B\,\text{Cos}[3\,e+2\,f\,x]-6\,A\,\text{Sin}[e]-3\,i\,B\,\text{Sin}[e]+\\ 5\,A\,\text{Sin}[e+2\,f\,x]+i\,B\,\text{Sin}[e+2\,f\,x]-3\,A\,\text{Sin}[3\,e+2\,f\,x]-3\,i\,B\,\text{Sin}[3\,e+2\,f\,x]+2\,A\,\text{Sin}[3\,e+4\,f\,x]+i\,B\,\text{Sin}[3\,e+4\,f\,x])$$

Problem 671: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])\,(A+B\,\text{Tan}[e+f\,x])}{c-i\,c\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 54 leaves, 3 steps):

$$\frac{i\,a\,B\,x}{c}+\frac{a\,B\,\text{Log}[\text{Cos}[e+f\,x]]}{c\,f}+\frac{a\,(A-i\,B)}{c\,f\,(i+\text{Tan}[e+f\,x])}$$

Result (type 3, 123 leaves):

$$\frac{1}{2\,c\,f}a\,(-i\,\text{Cos}[e+f\,x]+\text{Sin}[e+f\,x])\,\left(\text{Cos}[e+f\,x]\,\left(A-i\,B-4\,B\,f\,x+i\,B\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\right)+\right.\\ \left.2\,B\,\text{ArcTan}[\text{Tan}[2\,e+f\,x]]\,(\text{Cos}[e+f\,x]-i\,\text{Sin}[e+f\,x])+\left(i\,A+B+4\,i\,B\,f\,x+B\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\right)\,\text{Sin}[e+f\,x]\right)$$

Problem 675: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])\,(A+B\,\text{Tan}[e+f\,x])}{(c-i\,c\,\text{Tan}[e+f\,x])^5}\,dx$$

Optimal (type 3, 55 leaves, 3 steps):

$$\frac{a\,(A-i\,B)}{5\,c^5\,f\,(i+\text{Tan}[e+f\,x])^5}+\frac{a\,B}{4\,c^5\,f\,(i+\text{Tan}[e+f\,x])^4}$$

Result (type 3, 124 leaves):

$$-\frac{1}{320\,c^5\,f}i\,a\,(20\,A+5\,(6\,A+i\,B)\,\text{Cos}[2\,(e+f\,x)]+4\,(3\,A+2\,i\,B)\,\text{Cos}[4\,(e+f\,x)]-10\,i\,A\,\text{Sin}[2\,(e+f\,x)]+\\ 15\,B\,\text{Sin}[2\,(e+f\,x)]-8\,i\,A\,\text{Sin}[4\,(e+f\,x)]+12\,B\,\text{Sin}[4\,(e+f\,x)])\,(\text{Cos}[6\,(e+f\,x)]+i\,\text{Sin}[6\,(e+f\,x)])$$

Problem 677: Result more than twice size of optimal antiderivative.

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^2\,(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^5\,dx$$

Optimal (type 3, 99 leaves, 3 steps):

$$\frac{2\,a^2\,(i\,A+B)\,c^5\,(1-i\,\text{Tan}[e+f\,x])^5}{5\,f}-\frac{a^2\,(i\,A+3\,B)\,c^5\,(1-i\,\text{Tan}[e+f\,x])^6}{6\,f}+\frac{a^2\,B\,c^5\,(1-i\,\text{Tan}[e+f\,x])^7}{7\,f}$$

Result (type 3, 254 leaves):

$$\frac{1}{840\,f}a^2 c^5 \operatorname{Sec}[e]\operatorname{Sec}[e+f x]^7\\ (35(-7 i A+3 B)\operatorname{Cos}[f x]+35(-7 i A+3 B)\operatorname{Cos}[2 e+f x]-105 i A\operatorname{Cos}[2 e+3 f x]+105 B\operatorname{Cos}[2 e+3 f x]-105 i A\operatorname{Cos}[4 e+3 f x]+105 B\\ \operatorname{Cos}[4 e+3 f x]+245 A\operatorname{Sin}[f x]+105 i B\operatorname{Sin}[f x]-245 A\operatorname{Sin}[2 e+f x]-105 i B\operatorname{Sin}[2 e+f x]+189 A\operatorname{Sin}[2 e+3 f x]+21 i B\operatorname{Sin}[2 e+3 f x]-\\ 105 A\operatorname{Sin}[4 e+3 f x]-105 i B\operatorname{Sin}[4 e+3 f x]+98 A\operatorname{Sin}[4 e+5 f x]+42 i B\operatorname{Sin}[4 e+5 f x]+14 A\operatorname{Sin}[6 e+7 f x]+6 i B\operatorname{Sin}[6 e+7 f x])$$

Problem 682: Result more than twice size of optimal antiderivative.

$$\int(a+i a\operatorname{Tan}[e+f x])^2(A+B\operatorname{Tan}[e+f x])\,dx$$

Optimal (type 3, 80 leaves, 3 steps):

$$2 a^2(A-i B)x-\frac{2 a^2(i A+B)\operatorname{Log}[\operatorname{Cos}[e+f x]]}{f}-\frac{a^2(A-i B)\operatorname{Tan}[e+f x]}{f}+\frac{B(a+i a\operatorname{Tan}[e+f x])^2}{2 f}$$

Result (type 3, 263 leaves):

$$\frac{1}{4 f(\operatorname{Cos}[f x]+i\operatorname{Sin}[f x])^2}a^2\operatorname{Sec}[e]\operatorname{Sec}[e+f x]^2(\operatorname{Cos}[2 f x]+i\operatorname{Sin}[2 f x])\\ \Big(-8(A-i B)\operatorname{ArcTan}[\operatorname{Tan}[3 e+f x]]\operatorname{Cos}[e]\operatorname{Cos}[e+f x]^2-i\Big(4 i A f x\operatorname{Cos}[3 e+2 f x]+4 B f x\operatorname{Cos}[3 e+2 f x]+\\ (i A+B)\operatorname{Cos}[e+2 f x]\Big(4 f x-i\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]\Big)+A\operatorname{Cos}[3 e+2 f x]\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]-i B\operatorname{Cos}[3 e+2 f x]\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]+\\ 2\operatorname{Cos}[e]\Big(-i B+4 i A f x+4 B f x+(A-i B)\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]\Big)+2 i A\operatorname{Sin}[e]+4 B\operatorname{Sin}[e]-2 i A\operatorname{Sin}[e+2 f x]-4 B\operatorname{Sin}[e+2 f x]\Big)\Big)$$

Problem 683: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i a\operatorname{Tan}[e+f x])^2(A+B\operatorname{Tan}[e+f x])}{c-i c\operatorname{Tan}[e+f x]}\,dx$$

Optimal (type 3, 93 leaves, 3 steps):

$$-\frac{a^2(A-3 i B)x}{c}+\frac{a^2(i A+3 B)\operatorname{Log}[\operatorname{Cos}[e+f x]]}{c f}-\frac{i a^2 B\operatorname{Tan}[e+f x]}{c f}+\frac{2 a^2(A-i B)}{c f(i+\operatorname{Tan}[e+f x])}$$

Result (type 3, 418 leaves):

$$\frac{1}{2 c f(\operatorname{Cos}[f x]+i\operatorname{Sin}[f x])^2(A\operatorname{Cos}[e+f x]+B\operatorname{Sin}[e+f x])}\\ a^2\operatorname{Sec}[e]\Big(2(A-3 i B)f x\operatorname{Cos}[e]^3\operatorname{Cos}[e+f x]+A f x\operatorname{Cos}[3 e]\operatorname{Cos}[e+f x]+2 i A f x\operatorname{Cos}[2 e]\operatorname{Cos}[e+f x]\operatorname{Sin}[e]+\\ 6 B f x\operatorname{Cos}[2 e]\operatorname{Cos}[e+f x]\operatorname{Sin}[e]-2 i\operatorname{Cos}[e]^2\operatorname{Cos}[e+f x]\Big((5 A-9 i B)f x+(-i A-3 B)\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]\Big)\operatorname{Sin}[e]+\\ 2 i A f x\operatorname{Cos}[e+f x]\operatorname{Sin}[e]^3+6 B f x\operatorname{Cos}[e+f x]\operatorname{Sin}[e]^3-2(A-3 i B)\operatorname{ArcTan}[\operatorname{Tan}[3 e+f x]]\operatorname{Cos}[e]\operatorname{Cos}[e+f x](\operatorname{Cos}[2 e]-i\operatorname{Sin}[2 e])-\\ 6 i B f x\operatorname{Cos}[e+f x]\operatorname{Sin}[e]\operatorname{Sin}[2 e]+2 i B\operatorname{Cos}[2 e]\operatorname{Sin}[f x]+2 B\operatorname{Sin}[2 e]\operatorname{Sin}[f x]+\\ \operatorname{Cos}[e]\operatorname{Cos}[e+f x]\Big(A f x+2(i A+B)\operatorname{Cos}[2 f x]-i\operatorname{Cos}[2 e]\Big(6 B f x+(A-3 i B)\operatorname{Log}\big[\operatorname{Cos}[e+f x]^2\big]\Big)-2 A f x\operatorname{Sin}[e]^2+\\ 18 i B f x\operatorname{Sin}[e]^2-6 B f x\operatorname{Sin}[2 e]-2 A\operatorname{Sin}[2 f x]+2 i B\operatorname{Sin}[2 f x]\Big)\Big)(-i\operatorname{Cos}[e+f x]+\operatorname{Sin}[e+f x])^2(A+B\operatorname{Tan}[e+f x])$$

Problem 684: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+i a\operatorname{Tan}[e+f x])^2(A+B\operatorname{Tan}[e+f x])}{(c-i c\operatorname{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 91 leaves, 3 steps):

$$-\frac{i\,a^2 B x}{c^2}-\frac{a^2 B \text{Log}[\text{Cos}[e+f x]]}{c^2 f}+\frac{a^2 (i A+B)}{c^2 f (i+\text{Tan}[e+f x])^2}-\frac{a^2 (A-3 i B)}{c^2 f (i+\text{Tan}[e+f x])}$$

Result (type 3, 184 leaves):

$$\frac{1}{4 c^2 f (\text{Cos}[f x]+i \text{Sin}[f x])^2} a^2 \Big(4 B-i \text{Cos}[2 (e+f x)] \left(A-i B+8 B f x-2 i B \text{Log}\left[\text{Cos}[e+f x]^2\right]\right)+ A \text{Sin}[2 (e+f x)]-i B \text{Sin}[2 (e+f x)]-8 B f x \text{Sin}[2 (e+f x)]+2 i B \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[2 (e+f x)]+ 4 B \text{ArcTan}[\text{Tan}[3 e+f x]] (i \text{Cos}[2 (e+f x)]+\text{Sin}[2 (e+f x)])\Big) (\text{Cos}[2 (e+2 f x)]+i \text{Sin}[2 (e+2 f x)])$$

Problem 689: Result more than twice size of optimal antiderivative.

$$\int (a+i a \text{Tan}[e+f x])^3 (A+B \text{Tan}[e+f x]) (c-i c \text{Tan}[e+f x])^n \, dx$$

Optimal (type 3, 151 leaves, 3 steps):

$$\frac{4 a^3 (i A+B) (c-i c \text{Tan}[e+f x])^n}{f n}-\frac{4 a^3 (i A+2 B) (c-i c \text{Tan}[e+f x])^{1+n}}{c f (1+n)}+\frac{a^3 (i A+5 B) (c-i c \text{Tan}[e+f x])^{2+n}}{c^2 f (2+n)}-\frac{a^3 B (c-i c \text{Tan}[e+f x])^{3+n}}{c^3 f (3+n)}$$

Result (type 3, 822 leaves):

$$\frac{1}{f (\text{Cos}[f x]+i \text{Sin}[f x])^3 (A \text{Cos}[e+f x]+B \text{Sin}[e+f x])}$$
$$\text{Cos}[e+f x]^4 \Bigg(\frac{1}{(2+n) (3+n)}\text{Sec}[e] \text{Sec}[e+f x]^2 (3 A \text{Cos}[e]-9 i B \text{Cos}[e]+A n \text{Cos}[e]-2 i B n \text{Cos}[e]+2 B \text{Sin}[e]+B n \text{Sin}[e])$$
$$\left(-i e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Cos}[3 e]-e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Sin}[3 e]\right)+$$
$$\frac{1}{(1+n) (2+n) (3+n)} \text{Sec}[e] \Big(12 i A \text{Cos}[e]+12 B \text{Cos}[e]+13 i A n \text{Cos}[e]+9 B n \text{Cos}[e]+6 i A n^2 \text{Cos}[e]+6 B n^2 \text{Cos}[e]+$$
$$i A n^3 \text{Cos}[e]+B n^3 \text{Cos}[e]-9 A n \text{Sin}[e]+13 i B n \text{Sin}[e]-6 A n^2 \text{Sin}[e]+6 i B n^2 \text{Sin}[e]-A n^3 \text{Sin}[e]+i B n^3 \text{Sin}[e]\Big)$$
$$\left(\frac{2 e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Cos}[3 e]}{n}-\frac{2 i e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Sin}[3 e]}{n}\right)+$$
$$\frac{1}{(1+n) (2+n) (3+n)}\left(9 A-13 i B+6 A n-6 i B n+A n^2-i B n^2\right) \text{Sec}[e] \text{Sec}[e+f x]$$
$$\left(-2 e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Cos}[3 e]+2 i e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Sin}[3 e]\right) \text{Sin}[f x]-\frac{1}{3+n}$$
$$i \text{Sec}[e] \text{Sec}[e+f x]^3 \left(B e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Cos}[3 e]-i B e^{-i f n x+n (i f x-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])} \text{Sin}[3 e]\right)$$
$$\text{Sin}[f x]\Bigg) (a+i a \text{Tan}[e+f x])^3 (A+B \text{Tan}[e+f x]) (c-i c \text{Tan}[e+f x])^{n-\frac{n (-\text{Log}[c \text{Sec}[e+f x]]+\text{Log}[c-i c \text{Tan}[e+f x]])}{\text{Log}[c-i c \text{Tan}[e+f x]]}}$$

Problem 695: Result more than twice size of optimal antiderivative.

$$\int (a+i a \text{Tan}[e+f x])^3 (A+B \text{Tan}[e+f x]) (c-i c \text{Tan}[e+f x]) \, dx$$

Optimal (type 3, 61 leaves, 3 steps):

$$-\frac{a^3 (i A - B) c (1 + i \operatorname{Tan}[e + f x])^3}{3 f} - \frac{a^3 B c (1 + i \operatorname{Tan}[e + f x])^4}{4 f}$$

Result (type 3, 161 leaves):

$$\frac{1}{12 f} a^3 c \operatorname{Sec}[e] \operatorname{Sec}[e + f x]^4 \\ (3 (2 i A + B) \operatorname{Cos}[e] + 3 (i A + B) \operatorname{Cos}[e + 2 f x] + 3 i A \operatorname{Cos}[3 e + 2 f x] + 3 B \operatorname{Cos}[3 e + 2 f x] - 6 A \operatorname{Sin}[e] + 3 i B \operatorname{Sin}[e] + 5 A \operatorname{Sin}[e + 2 f x] - \\ i B \operatorname{Sin}[e + 2 f x] - 3 A \operatorname{Sin}[3 e + 2 f x] + 3 i B \operatorname{Sin}[3 e + 2 f x] + 2 A \operatorname{Sin}[3 e + 4 f x] - i B \operatorname{Sin}[3 e + 4 f x])$$

- **Problem 696: Result more than twice size of optimal antiderivative.**

$$\int (a + i a \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x]) \, dx$$

Optimal (type 3, 110 leaves, 4 steps):

$$4 a^3 (A - i B) x - \frac{4 a^3 (i A + B) \operatorname{Log}[\operatorname{Cos}[e + f x]]}{f} - \frac{2 a^3 (A - i B) \operatorname{Tan}[e + f x]}{f} + \frac{a (i A + B) (a + i a \operatorname{Tan}[e + f x])^2}{2 f} + \frac{B (a + i a \operatorname{Tan}[e + f x])^3}{3 f}$$

Result (type 3, 883 leaves):

$$\left(\text{Cos}[e+f x]^4 \left(A \,\text{Cos}\left[\frac{3 e}{2}\right]-i B \,\text{Cos}\left[\frac{3 e}{2}\right]-i A \,\text{Sin}\left[\frac{3 e}{2}\right]-B \,\text{Sin}\left[\frac{3 e}{2}\right]\right)\left(-2 i \,\text{Cos}\left[\frac{3 e}{2}\right] \text{Log}\left[\text{Cos}[e+f x]^2\right]-2 \,\text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}\left[\frac{3 e}{2}\right]\right)\right.$$
$$\left.(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])\right) \Big/ \left(f (\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])\right)+$$
$$\left(\text{Cos}[e+f x]^2 (3 A \,\text{Cos}[e]-9 i B \,\text{Cos}[e]+2 B \,\text{Sin}[e])\left(-\frac{1}{6} i \,\text{Cos}[3 e]-\frac{1}{6} \text{Sin}[3 e]\right)(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])\right) \Big/$$
$$\left(f \left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)(\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])\right)+$$
$$\frac{(A-i B) \,\text{Cos}[e+f x]^4 (4 f x \,\text{Cos}[3 e]-4 i f x \,\text{Sin}[3 e])(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])}{f (\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])}-$$
$$\frac{i B \,\text{Cos}[e+f x]\left(\frac{1}{3} \text{Cos}[3 e]-\frac{1}{3} i \,\text{Sin}[3 e]\right) \text{Sin}[f x] (a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])}{f \left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)(\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])}+$$
$$\left(\text{Cos}[e+f x]^3 \left(\frac{1}{3} \text{Cos}[3 e]-\frac{1}{3} i \,\text{Sin}[3 e]\right)(-9 A \,\text{Sin}[f x]+13 i B \,\text{Sin}[f x])(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])\right) \Big/$$
$$\left(f \left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)(\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])\right)+$$
$$\frac{1}{(\text{Cos}[f x]+i \,\text{Sin}[f x])^3 (A \,\text{Cos}[e+f x]+B \,\text{Sin}[e+f x])}$$
$$x \,\text{Cos}[e+f x]^4 \left(-2 A \,\text{Cos}[e]+2 i B \,\text{Cos}[e]+2 A \,\text{Cos}[e]^3-2 i B \,\text{Cos}[e]^3+4 i A \,\text{Sin}[e]+4 B \,\text{Sin}[e]-8 i A \,\text{Cos}[e]^2 \text{Sin}[e]-8 B \,\text{Cos}[e]^2 \text{Sin}[e]-\right.$$
$$12 A \,\text{Cos}[e] \,\text{Sin}[e]^2+12 i B \,\text{Cos}[e] \,\text{Sin}[e]^2+8 i A \,\text{Sin}[e]^3+8 B \,\text{Sin}[e]^3+2 A \,\text{Sin}[e] \,\text{Tan}[e]-2 i B \,\text{Sin}[e] \,\text{Tan}[e]+$$
$$\left.2 A \,\text{Sin}[e]^3 \text{Tan}[e]-2 i B \,\text{Sin}[e]^3 \text{Tan}[e]+i (A-i B)(4 \,\text{Cos}[3 e]-4 i \,\text{Sin}[3 e]) \,\text{Tan}[e]\right)(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])$$

- **Problem 697: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \,\text{Tan}[e+f x])^3 (A+B \,\text{Tan}[e+f x])}{c-i c \,\text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 119 leaves, 3 steps) :

$$-\frac{4 a^3 (A-2 i B) x}{c}+\frac{4 a^3 (i A+2 B) \,\text{Log}[\text{Cos}[e+f x]]}{c f}+\frac{a^3 (A-4 i B) \,\text{Tan}[e+f x]}{c f}+\frac{a^3 B \,\text{Tan}[e+f x]^2}{2 c f}+\frac{4 a^3 (A-i B)}{c f (i+\text{Tan}[e+f x])}$$

Result (type 3, 944 leaves) :

$$\frac{(A-iB)\operatorname{Cos}[2fx]\operatorname{Cos}[e+fx]^4\left(-\frac{2i\operatorname{Cos}[e]}{c}-\frac{2\operatorname{Sin}[e]}{c}\right)(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{f(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}+$$

$$\frac{\operatorname{Cos}[e+fx]^2\left(\frac{B\operatorname{Cos}[3e]}{2c}-\frac{iB\operatorname{Sin}[3e]}{2c}\right)(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{f(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}+$$

$$\frac{(A-2iB)\operatorname{Cos}[e+fx]^4\left(-\frac{4fx\operatorname{Cos}[3e]}{c}+\frac{4ifx\operatorname{Sin}[3e]}{c}\right)(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{f(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}+$$

$$\left((iA+2B)\operatorname{Cos}[e+fx]^4\left(\frac{2\operatorname{Cos}[3e]\operatorname{Log}\left[\operatorname{Cos}[e+fx]^2\right]}{c}-\frac{2i\operatorname{Log}\left[\operatorname{Cos}[e+fx]^2\right]\operatorname{Sin}[3e]}{c}\right)(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])\right)\Big/$$
$$\left(f(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])\right)+$$

$$\frac{\operatorname{Cos}[e+fx]^3\left(\frac{\operatorname{Cos}[3e]}{c}-\frac{i\operatorname{Sin}[3e]}{c}\right)(A\operatorname{Sin}[fx]-4iB\operatorname{Sin}[fx])(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{f\left(\operatorname{Cos}\left[\frac{e}{2}\right]-\operatorname{Sin}\left[\frac{e}{2}\right]\right)\left(\operatorname{Cos}\left[\frac{e}{2}\right]+\operatorname{Sin}\left[\frac{e}{2}\right]\right)(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}+$$

$$\frac{(A-iB)\operatorname{Cos}[e+fx]^4\left(\frac{2\operatorname{Cos}[e]}{c}-\frac{2i\operatorname{Sin}[e]}{c}\right)\operatorname{Sin}[2fx](a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{f(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}+$$

$$\frac{1}{(\operatorname{Cos}[fx]+i\operatorname{Sin}[fx])^3(A\operatorname{Cos}[e+fx]+B\operatorname{Sin}[e+fx])}x\operatorname{Cos}[e+fx]^4$$
$$\left(\frac{2A\operatorname{Cos}[e]}{c}-\frac{4iB\operatorname{Cos}[e]}{c}-\frac{2A\operatorname{Cos}[e]^3}{c}+\frac{4iB\operatorname{Cos}[e]^3}{c}-\frac{4iA\operatorname{Sin}[e]}{c}-\frac{8B\operatorname{Sin}[e]}{c}+\frac{8iA\operatorname{Cos}[e]^2\operatorname{Sin}[e]}{c}+\frac{16B\operatorname{Cos}[e]^2\operatorname{Sin}[e]}{c}+\right.$$
$$\frac{12A\operatorname{Cos}[e]\operatorname{Sin}[e]^2}{c}-\frac{24iB\operatorname{Cos}[e]\operatorname{Sin}[e]^2}{c}-\frac{8iA\operatorname{Sin}[e]^3}{c}-\frac{16B\operatorname{Sin}[e]^3}{c}-\frac{2A\operatorname{Sin}[e]\operatorname{Tan}[e]}{c}+\frac{4iB\operatorname{Sin}[e]\operatorname{Tan}[e]}{c}-$$
$$\left.\frac{2A\operatorname{Sin}[e]^3\operatorname{Tan}[e]}{c}+\frac{4iB\operatorname{Sin}[e]^3\operatorname{Tan}[e]}{c}-i(A-2iB)\left(\frac{4\operatorname{Cos}[3e]}{c}-\frac{4i\operatorname{Sin}[3e]}{c}\right)\operatorname{Tan}[e]\right)(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])$$

- **Problem 698: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+ia\operatorname{Tan}[e+fx])^3(A+B\operatorname{Tan}[e+fx])}{(c-ic\operatorname{Tan}[e+fx])^2}\,dx$$

Optimal (type 3, 123 leaves, 3 steps):

$$\frac{a^3(A-5iB)x}{c^2}-\frac{a^3(iA+5B)\operatorname{Log}[\operatorname{Cos}[e+fx]]}{c^2f}+\frac{ia^3B\operatorname{Tan}[e+fx]}{c^2f}+\frac{2a^3(iA+B)}{c^2f(i+\operatorname{Tan}[e+fx])^2}-\frac{4a^3(A-2iB)}{c^2f(i+\operatorname{Tan}[e+fx])}$$

Result (type 3, 1063 leaves):

$$\frac{(\mathrm{i}\,A+3B)\,\mathrm{Cos}[2fx]\,\mathrm{Cos}[e+fx]^4\left(\frac{\mathrm{Cos}[e]}{c^2}-\frac{\mathrm{i}\,\mathrm{Sin}[e]}{c^2}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{Cos}[4fx]\,\mathrm{Cos}[e+fx]^4\left(-\frac{\mathrm{i}\,\mathrm{Cos}[e]}{2c^2}+\frac{\mathrm{Sin}[e]}{2c^2}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\frac{(A-5\,\mathrm{i}\,B)\,\mathrm{Cos}[e+fx]^4\left(\frac{f\,x\,\mathrm{Cos}[3e]}{c^2}-\frac{\mathrm{i}\,f\,x\,\mathrm{Sin}[3e]}{c^2}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\left((A-5\,\mathrm{i}\,B)\,\mathrm{Cos}[e+fx]^4\left(-\frac{\mathrm{i}\,\mathrm{Cos}[3e]\,\mathrm{Log}\left[\mathrm{Cos}[e+fx]^2\right]}{2c^2}-\frac{\mathrm{Log}\left[\mathrm{Cos}[e+fx]^2\right]\,\mathrm{Sin}[3e]}{2c^2}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])\right)\Big/$$
$$\left(f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])\right)+$$

$$\frac{\mathrm{i}\,B\,\mathrm{Cos}[e+fx]^3\left(\frac{\mathrm{Cos}[3e]}{c^2}-\frac{\mathrm{i}\,\mathrm{Sin}[3e]}{c^2}\right)\mathrm{Sin}[fx]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\left(\mathrm{Cos}\left[\frac{e}{2}\right]-\mathrm{Sin}\left[\frac{e}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{e}{2}\right]+\mathrm{Sin}\left[\frac{e}{2}\right]\right)(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\frac{(A-3\,\mathrm{i}\,B)\,\mathrm{Cos}[e+fx]^4\left(-\frac{\mathrm{Cos}[e]}{c^2}+\frac{\mathrm{i}\,\mathrm{Sin}[e]}{c^2}\right)\mathrm{Sin}[2fx]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{Cos}[e+fx]^4\left(\frac{\mathrm{Cos}[e]}{2c^2}+\frac{\mathrm{i}\,\mathrm{Sin}[e]}{2c^2}\right)\mathrm{Sin}[4fx]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{f\,(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}+$$

$$\frac{1}{(\mathrm{Cos}[fx]+\mathrm{i}\,\mathrm{Sin}[fx])^3\,(A\,\mathrm{Cos}[e+fx]+B\,\mathrm{Sin}[e+fx])}$$
$$x\,\mathrm{Cos}[e+fx]^4\left(-\frac{A\,\mathrm{Cos}[e]}{2c^2}+\frac{5\,\mathrm{i}\,B\,\mathrm{Cos}[e]}{2c^2}+\frac{A\,\mathrm{Cos}[e]^3}{2c^2}-\frac{5\,\mathrm{i}\,B\,\mathrm{Cos}[e]^3}{2c^2}+\frac{\mathrm{i}\,A\,\mathrm{Sin}[e]}{c^2}+\frac{5B\,\mathrm{Sin}[e]}{c^2}-\frac{2\,\mathrm{i}\,A\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]}{c^2}-\frac{10B\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]}{c^2}-\right.$$
$$\frac{3A\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^2}{c^2}+\frac{15\,\mathrm{i}\,B\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^2}{c^2}+\frac{2\,\mathrm{i}\,A\,\mathrm{Sin}[e]^3}{c^2}+\frac{10B\,\mathrm{Sin}[e]^3}{c^2}+\frac{A\,\mathrm{Sin}[e]\,\mathrm{Tan}[e]}{2c^2}-\frac{5\,\mathrm{i}\,B\,\mathrm{Sin}[e]\,\mathrm{Tan}[e]}{2c^2}+$$
$$\left.\frac{A\,\mathrm{Sin}[e]^3\,\mathrm{Tan}[e]}{2c^2}-\frac{5\,\mathrm{i}\,B\,\mathrm{Sin}[e]^3\,\mathrm{Tan}[e]}{2c^2}+\mathrm{i}\,(A-5\,\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[3e]}{c^2}-\frac{\mathrm{i}\,\mathrm{Sin}[3e]}{c^2}\right)\mathrm{Tan}[e]\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])$$

- **Problem 703: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+fx])^3\,(A+B\,\mathrm{Tan}[e+fx])}{(c-\mathrm{i}\,c\,\mathrm{Tan}[e+fx])^7}\,dx$$

Optimal (type 3, 125 leaves, 3 steps):

$$-\frac{4a^3\,(A-\mathrm{i}\,B)}{7c^7f\,(\mathrm{i}+\mathrm{Tan}[e+fx])^7}-\frac{2a^3\,(\mathrm{i}\,A+2B)}{3c^7f\,(\mathrm{i}+\mathrm{Tan}[e+fx])^6}+\frac{a^3\,(A-5\,\mathrm{i}\,B)}{5c^7f\,(\mathrm{i}+\mathrm{Tan}[e+fx])^5}+\frac{a^3B}{4c^7f\,(\mathrm{i}+\mathrm{Tan}[e+fx])^4}$$

Result (type 3, 1077 leaves):

$$\frac{(-i A+B) \cos[6 f x] \cos[e+f x]^4 \left(\frac{\cos[3 e]}{96 c^7}+\frac{i \sin[3 e]}{96 c^7}\right) (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(-2 i A+B) \cos[8 f x] \cos[e+f x]^4 \left(\frac{\cos[5 e]}{64 c^7}+\frac{i \sin[5 e]}{64 c^7}\right) (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{\cos[10 f x] \cos[e+f x]^4 \left(-\frac{3 i A \cos[7 e]}{80 c^7}+\frac{3 A \sin[7 e]}{80 c^7}\right) (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(2 A-i B) \cos[12 f x] \cos[e+f x]^4 \left(-\frac{i \cos[9 e]}{96 c^7}+\frac{\sin[9 e]}{96 c^7}\right) (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(A-i B) \cos[14 f x] \cos[e+f x]^4 \left(-\frac{i \cos[11 e]}{224 c^7}+\frac{\sin[11 e]}{224 c^7}\right) (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(A+i B) \cos[e+f x]^4 \left(\frac{\cos[3 e]}{96 c^7}+\frac{i \sin[3 e]}{96 c^7}\right) \sin[6 f x] (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(2 A+i B) \cos[e+f x]^4 \left(\frac{\cos[5 e]}{64 c^7}+\frac{i \sin[5 e]}{64 c^7}\right) \sin[8 f x] (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{\cos[e+f x]^4 \left(\frac{3 A \cos[7 e]}{80 c^7}+\frac{3 i A \sin[7 e]}{80 c^7}\right) \sin[10 f x] (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(2 A-i B) \cos[e+f x]^4 \left(\frac{\cos[9 e]}{96 c^7}+\frac{i \sin[9 e]}{96 c^7}\right) \sin[12 f x] (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}+$$

$$\frac{(A-i B) \cos[e+f x]^4 \left(\frac{\cos[11 e]}{224 c^7}+\frac{i \sin[11 e]}{224 c^7}\right) \sin[14 f x] (a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{f (\cos[f x]+i \sin[f x])^3 (A \cos[e+f x]+B \sin[e+f x])}$$

- **Problem 704: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+i a \tan[e+f x])^3 (A+B \tan[e+f x])}{(c-i c \tan[e+f x])^8} \, dx$$

Optimal (type 3, 127 leaves, 3 steps):

$$-\frac{a^3 (i A+B)}{2 c^8 f (i+\tan[e+f x])^8}+\frac{4 a^3 (A-2 i B)}{7 c^8 f (i+\tan[e+f x])^7}+\frac{a^3 (i A+5 B)}{6 c^8 f (i+\tan[e+f x])^6}+\frac{i a^3 B}{5 c^8 f (i+\tan[e+f x])^5}$$

Result (type 3, 1311 leaves):

$$\frac{(-\mathrm{i}\,A+B)\,\mathrm{Cos}[6\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[3\,e]}{192\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[3\,e]}{192\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(-5\,\mathrm{i}\,A+3\,B)\,\mathrm{Cos}[8\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[5\,e]}{256\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[5\,e]}{256\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(-5\,\mathrm{i}\,A+B)\,\mathrm{Cos}[10\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[7\,e]}{160\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[7\,e]}{160\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A-\mathrm{i}\,B)\,\mathrm{Cos}[12\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(-\frac{\mathrm{i}\,\mathrm{Cos}[9\,e]}{192\,c^8}+\frac{\mathrm{Sin}[9\,e]}{192\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A-3\,\mathrm{i}\,B)\,\mathrm{Cos}[14\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(-\frac{\mathrm{i}\,\mathrm{Cos}[11\,e]}{448\,c^8}+\frac{\mathrm{Sin}[11\,e]}{448\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{Cos}[16\,f\,x]\,\mathrm{Cos}[e+f\,x]^4\left(-\frac{\mathrm{i}\,\mathrm{Cos}[13\,e]}{512\,c^8}+\frac{\mathrm{Sin}[13\,e]}{512\,c^8}\right)(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[3\,e]}{192\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[3\,e]}{192\,c^8}\right)\mathrm{Sin}[6\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A+3\,\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[5\,e]}{256\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[5\,e]}{256\,c^8}\right)\mathrm{Sin}[8\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A+\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[7\,e]}{160\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[7\,e]}{160\,c^8}\right)\mathrm{Sin}[10\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A-\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[9\,e]}{192\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[9\,e]}{192\,c^8}\right)\mathrm{Sin}[12\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(5\,A-3\,\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[11\,e]}{448\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[11\,e]}{448\,c^8}\right)\mathrm{Sin}[14\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}+$$

$$\frac{(A-\mathrm{i}\,B)\,\mathrm{Cos}[e+f\,x]^4\left(\frac{\mathrm{Cos}[13\,e]}{512\,c^8}+\frac{\mathrm{i}\,\mathrm{Sin}[13\,e]}{512\,c^8}\right)\mathrm{Sin}[16\,f\,x]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}$$

- **Problem 707: Result more than twice size of optimal antiderivative.**

$$\int\frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^3}{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 121 leaves, 3 steps) :

$$-\frac{4\,(A+2\,i\,B)\,c^3\,x}{a}-\frac{4\,(i\,A-2\,B)\,c^3\,\text{Log}[\text{Cos}[e+f\,x]]}{a\,f}-\frac{4\,(A+i\,B)\,c^3}{a\,f\,(i-\text{Tan}[e+f\,x])}+\frac{(A+4\,i\,B)\,c^3\,\text{Tan}[e+f\,x]}{a\,f}+\frac{B\,c^3\,\text{Tan}[e+f\,x]^2}{2\,a\,f}$$

Result (type 3, 972 leaves):

$$\left(\left(-i\,A\,c^3\,\text{Cos}\left[\frac{e}{2}\right]+2\,B\,c^3\,\text{Cos}\left[\frac{e}{2}\right]+A\,c^3\,\text{Sin}\left[\frac{e}{2}\right]+2\,i\,B\,c^3\,\text{Sin}\left[\frac{e}{2}\right]\right)\left(-4\,i\,\text{ArcTan}[\text{Tan}[f\,x]]\,\text{Cos}\left[\frac{e}{2}\right]+4\,\text{ArcTan}[\text{Tan}[f\,x]]\,\text{Sin}\left[\frac{e}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A+B\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])\right)+$$
$$\left(\left(-i\,A\,c^3\,\text{Cos}\left[\frac{e}{2}\right]+2\,B\,c^3\,\text{Cos}\left[\frac{e}{2}\right]+A\,c^3\,\text{Sin}\left[\frac{e}{2}\right]+2\,i\,B\,c^3\,\text{Sin}\left[\frac{e}{2}\right]\right)\left(2\,\text{Cos}\left[\frac{e}{2}\right]\text{Log}\left[\text{Cos}[e+f\,x]^2\right]+2\,i\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\text{Sin}\left[\frac{e}{2}\right]\right)\right.$$
$$\left.(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A+B\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])\right)+$$
$$\frac{(A+i\,B)\,\text{Cos}[2\,f\,x]\,\left(2\,i\,c^3\,\text{Cos}[e]+2\,c^3\,\text{Sin}[e]\right)(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A+B\,\text{Tan}[e+f\,x])}{f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])}+$$
$$\frac{\text{Sec}[e+f\,x]^2\left(\frac{1}{2}\,B\,c^3\,\text{Cos}[e]+\frac{1}{2}\,i\,B\,c^3\,\text{Sin}[e]\right)(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A+B\,\text{Tan}[e+f\,x])}{f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])}+$$
$$\frac{(A+2\,i\,B)\left(-4\,c^3\,f\,x\,\text{Cos}[e]-4\,i\,c^3\,f\,x\,\text{Sin}[e]\right)(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A+B\,\text{Tan}[e+f\,x])}{f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])}+$$
$$\frac{(A+i\,B)\left(2\,c^3\,\text{Cos}[e]-2\,i\,c^3\,\text{Sin}[e]\right)(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,\text{Sin}[2\,f\,x]\,(A+B\,\text{Tan}[e+f\,x])}{f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])}+$$
$$\left(\text{Sec}[e+f\,x]\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\left(i\,A\,c^3\,\text{Cos}[e-f\,x]-4\,B\,c^3\,\text{Cos}[e-f\,x]-i\,A\,c^3\,\text{Cos}[e+f\,x]+\right.\right.$$
$$\left.\left.4\,B\,c^3\,\text{Cos}[e+f\,x]-A\,c^3\,\text{Sin}[e-f\,x]-4\,i\,B\,c^3\,\text{Sin}[e-f\,x]+A\,c^3\,\text{Sin}[e+f\,x]+4\,i\,B\,c^3\,\text{Sin}[e+f\,x]\right)(A+B\,\text{Tan}[e+f\,x])\right)\Big/$$
$$\left(2\,f\left(\text{Cos}\left[\frac{e}{2}\right]-\text{Sin}\left[\frac{e}{2}\right]\right)\left(\text{Cos}\left[\frac{e}{2}\right]+\text{Sin}\left[\frac{e}{2}\right]\right)(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x])\right)+$$
$$\left(x\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\left(4\,A\,c^3\,\text{Sec}[e]+8\,i\,B\,c^3\,\text{Sec}[e]+i\,(A+2\,i\,B)\left(4\,c^3\,\text{Cos}[e]+4\,i\,c^3\,\text{Sin}[e]\right)\text{Tan}[e]\right)(A+B\,\text{Tan}[e+f\,x])\right)\Big/$$
$$((A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(a+i\,a\,\text{Tan}[e+f\,x]))$$

- **Problem 709: Result more than twice size of optimal antiderivative.**

$$\int\frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])}{a+i\,a\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 57 leaves, 3 steps):

$$-\frac{i\,B\,c\,x}{a}+\frac{B\,c\,\text{Log}[\text{Cos}[e+f\,x]]}{a\,f}-\frac{(A+i\,B)\,c}{a\,f\,(i-\text{Tan}[e+f\,x])}$$

Result (type 3, 124 leaves):

$$\left(c\,\text{Cos}[e+f\,x]\,(A+B\,\text{Tan}[e+f\,x])\right.$$
$$\left.\left(A+i\,B-i\,B\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]+\left(-i\,A+B+B\,\text{Log}\left[\text{Cos}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]-2\,i\,B\,\text{ArcTan}[\text{Tan}[f\,x]]\,(-i+\text{Tan}[e+f\,x])\right)\right)\Big/$$
$$(2\,a\,f\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\,(-i+\text{Tan}[e+f\,x]))$$

Problem 710: Result more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]}{a+i\,a\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 47 leaves, 2 steps):

$$\frac{(A-i\,B)\,x}{2\,a}+\frac{i\,A-B}{2\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])}$$

Result (type 3, 102 leaves):

$$\frac{\mathrm{Cos}[e+f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])\,(A-2\,i\,A\,f\,x+B\,(i-2\,f\,x)+(B-2\,i\,B\,f\,x+A\,(-i+2\,f\,x))\,\mathrm{Tan}[e+f\,x])}{4\,a\,f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(-i+\mathrm{Tan}[e+f\,x])}$$

Problem 715: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 115 leaves, 3 steps):

$$\frac{(i\,A\,(2-n)+B\,(2+n))\,\mathrm{Hypergeometric2F1}\left[2,\,n,\,1+n,\,\frac{1}{2}\,(1-i\,\mathrm{Tan}[e+f\,x])\right]\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{16\,a^2\,f\,n}+\frac{(i\,A-B)\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^n}{4\,a^2\,f\,(1+i\,\mathrm{Tan}[e+f\,x])^2}$$

Result (type 1, 1 leaves):

???

Problem 716: Result more than twice size of optimal antiderivative.

$$\int \frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^5}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 194 leaves, 3 steps):

$$\frac{8\,(3\,A+7\,i\,B)\,c^5\,x}{a^2}+\frac{8\,(3\,i\,A-7\,B)\,c^5\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{a^2\,f}-\frac{8\,(i\,A-B)\,c^5}{a^2\,f\,(i-\mathrm{Tan}[e+f\,x])^2}+$$
$$\frac{16\,(2\,A+3\,i\,B)\,c^5}{a^2\,f\,(i-\mathrm{Tan}[e+f\,x])}-\frac{(7\,A+24\,i\,B)\,c^5\,\mathrm{Tan}[e+f\,x]}{a^2\,f}+\frac{(i\,A-7\,B)\,c^5\,\mathrm{Tan}[e+f\,x]^2}{2\,a^2\,f}+\frac{i\,B\,c^5\,\mathrm{Tan}[e+f\,x]^3}{3\,a^2\,f}$$

Result (type 3, 1357 leaves):

$$\frac{4 (-3 i A+5 B) c^5 \text{Cos}[2 f x] \text{Sec}[e+f x] (\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])}{f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2}+$$

$$\Big(\text{Sec}[e+f x] \left(3 A c^5 \text{Cos}[e]+7 i B c^5 \text{Cos}[e]+3 i A c^5 \text{Sin}[e]-7 B c^5 \text{Sin}[e]\right) (8 \text{ArcTan}[\text{Tan}[f x]] \text{Cos}[e]+8 i \text{ArcTan}[\text{Tan}[f x]] \text{Sin}[e])$$
$$(\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])\Big)\Big/\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\Big(\text{Sec}[e+f x] \left(3 A c^5 \text{Cos}[e]+7 i B c^5 \text{Cos}[e]+3 i A c^5 \text{Sin}[e]-7 B c^5 \text{Sin}[e]\right) \left(4 i \text{Cos}[e] \text{Log}\left[\text{Cos}[e+f x]^2\right]-4 \text{Log}\left[\text{Cos}[e+f x]^2\right] \text{Sin}[e]\right)$$
$$(\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])\Big)\Big/\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\left(\text{Sec}[e] \text{Sec}[e+f x]^3 (3 A \text{Cos}[e]+21 i B \text{Cos}[e]+2 B \text{Sin}[e]) \left(\frac{1}{6} i c^5 \text{Cos}[2 e]-\frac{1}{6} c^5 \text{Sin}[2 e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])\right)\Big/$$
$$\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\left((A+i B) \text{Cos}[4 f x] \text{Sec}[e+f x] \left(2 i c^5 \text{Cos}[2 e]+2 c^5 \text{Sin}[2 e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])\right)\Big/$$
$$\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\left((3 A+7 i B) \text{Sec}[e+f x] \left(8 c^5 f x \text{Cos}[2 e]+8 i c^5 f x \text{Sin}[2 e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2 (A+B \text{Tan}[e+f x])\right)\Big/$$
$$\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)-\frac{4 (3 A+5 i B) c^5 \text{Sec}[e+f x] (\text{Cos}[f x]+i \text{Sin}[f x])^2 \text{Sin}[2 f x] (A+B \text{Tan}[e+f x])}{f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2}+$$

$$\left((A+i B) \text{Sec}[e+f x] \left(2 c^5 \text{Cos}[2 e]-2 i c^5 \text{Sin}[2 e]\right) (\text{Cos}[f x]+i \text{Sin}[f x])^2 \text{Sin}[4 f x] (A+B \text{Tan}[e+f x])\right)\Big/$$
$$\left(f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\Big(\text{Sec}[e] \text{Sec}[e+f x]^4 (\text{Cos}[f x]+i \text{Sin}[f x])^2 \left(-\frac{1}{2} B c^5 \text{Cos}[2 e-f x]+\frac{1}{2} B c^5 \text{Cos}[2 e+f x]-\frac{1}{2} i B c^5 \text{Sin}[2 e-f x]+\frac{1}{2} i B c^5 \text{Sin}[2 e+f x]\right)$$
$$(A+B \text{Tan}[e+f x])\Big)\Big/\left(3 f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+$$

$$\Big(\text{Sec}[e] \text{Sec}[e+f x]^2 (\text{Cos}[f x]+i \text{Sin}[f x])^2 \Big(-\frac{21}{2} i A c^5 \text{Cos}[2 e-f x]+\frac{73}{2} B c^5 \text{Cos}[2 e-f x]+\frac{21}{2} i A c^5 \text{Cos}[2 e+f x]-\frac{73}{2} B c^5 \text{Cos}[2 e+f x]+$$
$$\frac{21}{2} A c^5 \text{Sin}[2 e-f x]+\frac{73}{2} i B c^5 \text{Sin}[2 e-f x]-\frac{21}{2} A c^5 \text{Sin}[2 e+f x]-\frac{73}{2} i B c^5 \text{Sin}[2 e+f x]\Big) (A+B \text{Tan}[e+f x])\Big)\Big/$$
$$\left(3 f (A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)+\Big(x \text{Sec}[e+f x] (\text{Cos}[f x]+i \text{Sin}[f x])^2$$
$$\left(-24 A c^5-56 i B c^5-24 i A c^5 \text{Tan}[e]+56 B c^5 \text{Tan}[e]+(-3 i A+7 B) \left(8 c^5 \text{Cos}[2 e]+8 i c^5 \text{Sin}[2 e]\right) \text{Tan}[e]\right) (A+B \text{Tan}[e+f x])\Big)\Big/$$
$$\left((A \text{Cos}[e+f x]+B \text{Sin}[e+f x]) (a+i a \text{Tan}[e+f x])^2\right)$$

- **Problem 717: Result more than twice size of optimal antiderivative.**

$$\int \frac{(A+B \text{Tan}[e+f x]) (c-i c \text{Tan}[e+f x])^4}{(a+i a \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 158 leaves, 3 steps):

$$\frac{6 (A+3 i B) c^4 x}{a^2}+\frac{6 (i A-3 B) c^4 \text{Log}[\text{Cos}[e+f x]]}{a^2 f}-$$
$$\frac{4 (i A-B) c^4}{a^2 f (i-\text{Tan}[e+f x])^2}+\frac{4 (3 A+5 i B) c^4}{a^2 f (i-\text{Tan}[e+f x])}-\frac{(A+6 i B) c^4 \text{Tan}[e+f x]}{a^2 f}-\frac{B c^4 \text{Tan}[e+f x]^2}{2 a^2 f}$$

Result (type 3, 1079 leaves) :

$$c^4 \left(\frac{4\,(-\mathrm{i}\,A+2\,B)\,\mathrm{Cos}[2\,f\,x]\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} + \right.$$

$$\Big(\mathrm{Sec}[e+f\,x]\,(A\,\mathrm{Cos}[e]+3\,\mathrm{i}\,B\,\mathrm{Cos}[e]+\mathrm{i}\,A\,\mathrm{Sin}[e]-3\,B\,\mathrm{Sin}[e])\,(6\,\mathrm{ArcTan}[\mathrm{Tan}[f\,x]]\,\mathrm{Cos}[e]+6\,\mathrm{i}\,\mathrm{ArcTan}[\mathrm{Tan}[f\,x]]\,\mathrm{Sin}[e])$$
$$(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])\Big) \Big/ \left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\right) +$$

$$\Big(\mathrm{Sec}[e+f\,x]\,(A\,\mathrm{Cos}[e]+3\,\mathrm{i}\,B\,\mathrm{Cos}[e]+\mathrm{i}\,A\,\mathrm{Sin}[e]-3\,B\,\mathrm{Sin}[e])\,\left(3\,\mathrm{i}\,\mathrm{Cos}[e]\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]-3\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[e]\right)$$
$$(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])\Big) \Big/ \left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\right) +$$

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{Cos}[4\,f\,x]\,\mathrm{Sec}[e+f\,x]\,(\mathrm{i}\,\mathrm{Cos}[2\,e]+\mathrm{Sin}[2\,e])\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} +$$

$$\frac{\mathrm{Sec}[e+f\,x]^3\,\left(-\frac{1}{2}\,B\,\mathrm{Cos}[2\,e]-\frac{1}{2}\,\mathrm{i}\,B\,\mathrm{Sin}[2\,e]\right)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} +$$

$$\frac{(A+3\,\mathrm{i}\,B)\,\mathrm{Sec}[e+f\,x]\,(6\,f\,x\,\mathrm{Cos}[2\,e]+6\,\mathrm{i}\,f\,x\,\mathrm{Sin}[2\,e])\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} -$$

$$\frac{4\,(A+2\,\mathrm{i}\,B)\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,\mathrm{Sin}[2\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} +$$

$$\frac{(A+\mathrm{i}\,B)\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[2\,e]-\mathrm{i}\,\mathrm{Sin}[2\,e])\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,\mathrm{Sin}[4\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2} +$$

$$\Big(\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2$$
$$\Big(-\frac{1}{2}\,\mathrm{i}\,A\,\mathrm{Cos}[2\,e-f\,x]+3\,B\,\mathrm{Cos}[2\,e-f\,x]+\frac{1}{2}\,\mathrm{i}\,A\,\mathrm{Cos}[2\,e+f\,x]-3\,B\,\mathrm{Cos}[2\,e+f\,x]+\frac{1}{2}\,A\,\mathrm{Sin}[2\,e-f\,x]+3\,\mathrm{i}\,B\,\mathrm{Sin}[2\,e-f\,x]-$$
$$\frac{1}{2}\,A\,\mathrm{Sin}[2\,e+f\,x]-3\,\mathrm{i}\,B\,\mathrm{Sin}[2\,e+f\,x]\Big)\,(A+B\,\mathrm{Tan}[e+f\,x])\Big) \Big/ \left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\right) +$$

$$\Big(x\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(-6\,A-18\,\mathrm{i}\,B-6\,\mathrm{i}\,A\,\mathrm{Tan}[e]+18\,B\,\mathrm{Tan}[e]+(-\mathrm{i}\,A+3\,B)\,(6\,\mathrm{Cos}[2\,e]+6\,\mathrm{i}\,\mathrm{Sin}[2\,e])\,\mathrm{Tan}[e])$$
$$\left.(A+B\,\mathrm{Tan}[e+f\,x])\Big) \Big/ \left((A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\right)\right)$$

Problem 718: Result more than twice size of optimal antiderivative.

$$\int \frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^3}{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 128 leaves, 3 steps) :

$$\frac{(A+5\,\mathrm{i}\,B)\,c^3\,x}{a^2}+\frac{(\mathrm{i}\,A-5\,B)\,c^3\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{a^2\,f}-\frac{2\,(\mathrm{i}\,A-B)\,c^3}{a^2\,f\,(\mathrm{i}-\mathrm{Tan}[e+f\,x])^2}+\frac{4\,(A+2\,\mathrm{i}\,B)\,c^3}{a^2\,f\,(\mathrm{i}-\mathrm{Tan}[e+f\,x])}-\frac{\mathrm{i}\,B\,c^3\,\mathrm{Tan}[e+f\,x]}{a^2\,f}$$

Result (type 3, 1023 leaves) :

$$\frac{(-\mathrm{i}\,A+3\,B)\,c^3\,\mathrm{Cos}[2\,f\,x]\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2}+$$

$$\Big(\mathrm{Sec}[e+f\,x]\,\big(A\,c^3\,\mathrm{Cos}[e]+5\,\mathrm{i}\,B\,c^3\,\mathrm{Cos}[e]+\mathrm{i}\,A\,c^3\,\mathrm{Sin}[e]-5\,B\,c^3\,\mathrm{Sin}[e]\big)\,(\mathrm{ArcTan}[\mathrm{Tan}[f\,x]]\,\mathrm{Cos}[e]+\mathrm{i}\,\mathrm{ArcTan}[\mathrm{Tan}[f\,x]]\,\mathrm{Sin}[e])$$
$$(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])\Big)\Big/\Big(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)+$$

$$\left(\mathrm{Sec}[e+f\,x]\,\big(A\,c^3\,\mathrm{Cos}[e]+5\,\mathrm{i}\,B\,c^3\,\mathrm{Cos}[e]+\mathrm{i}\,A\,c^3\,\mathrm{Sin}[e]-5\,B\,c^3\,\mathrm{Sin}[e]\big)\left(\frac{1}{2}\,\mathrm{i}\,\mathrm{Cos}[e]\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]-\frac{1}{2}\,\mathrm{Log}\left[\mathrm{Cos}[e+f\,x]^2\right]\,\mathrm{Sin}[e]\right)\right.$$
$$\left.(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/\Big(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)+$$

$$\left((A+\mathrm{i}\,B)\,\mathrm{Cos}[4\,f\,x]\,\mathrm{Sec}[e+f\,x]\left(\frac{1}{2}\,\mathrm{i}\,c^3\,\mathrm{Cos}[2\,e]+\frac{1}{2}\,c^3\,\mathrm{Sin}[2\,e]\right)(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/$$
$$\Big(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)+$$

$$\frac{(A+5\,\mathrm{i}\,B)\,\mathrm{Sec}[e+f\,x]\,\big(c^3\,f\,x\,\mathrm{Cos}[2\,e]+\mathrm{i}\,c^3\,f\,x\,\mathrm{Sin}[2\,e]\big)\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2}-$$

$$\frac{(A+3\,\mathrm{i}\,B)\,c^3\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,\mathrm{Sin}[2\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2}+$$

$$\left((A+\mathrm{i}\,B)\,\mathrm{Sec}[e+f\,x]\left(\frac{1}{2}\,c^3\,\mathrm{Cos}[2\,e]-\frac{1}{2}\,\mathrm{i}\,c^3\,\mathrm{Sin}[2\,e]\right)(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,\mathrm{Sin}[4\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/$$
$$\Big(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)+$$

$$\left(\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\left(\frac{1}{2}\,B\,c^3\,\mathrm{Cos}[2\,e-f\,x]-\frac{1}{2}\,B\,c^3\,\mathrm{Cos}[2\,e+f\,x]+\frac{1}{2}\,\mathrm{i}\,B\,c^3\,\mathrm{Sin}[2\,e-f\,x]-\frac{1}{2}\,\mathrm{i}\,B\,c^3\,\mathrm{Sin}[2\,e+f\,x]\right)\right.$$
$$\left.(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/\Big(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)+$$

$$\Big(x\,\mathrm{Sec}[e+f\,x]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\,\big(-A\,c^3-5\,\mathrm{i}\,B\,c^3-\mathrm{i}\,A\,c^3\,\mathrm{Tan}[e]+5\,B\,c^3\,\mathrm{Tan}[e]+(-\mathrm{i}\,A+5\,B)\,\big(c^3\,\mathrm{Cos}[2\,e]+\mathrm{i}\,c^3\,\mathrm{Sin}[2\,e]\big)\,\mathrm{Tan}[e]\big)$$
$$(A+B\,\mathrm{Tan}[e+f\,x])\Big)\Big/\Big((A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^2\Big)$$

Problem 727: Attempted integration timed out after 120 seconds.

$$\int\frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^n}{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 115 leaves, 3 steps):

$$\frac{(\mathrm{i}\,A\,(3-n)+B\,(3+n))\,\mathrm{Hypergeometric2F1}\left[3,\,n,\,1+n,\,\frac{1}{2}\,(1-\mathrm{i}\,\mathrm{Tan}[e+f\,x])\right]\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^n}{48\,a^3\,f\,n}+\frac{(\mathrm{i}\,A-B)\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^n}{6\,a^3\,f\,(1+\mathrm{i}\,\mathrm{Tan}[e+f\,x])^3}$$

Result (type 1, 1 leaves):

???

Problem 728: Result more than twice size of optimal antiderivative.

$$\int \frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^5}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 191 leaves, 3 steps):

$$-\frac{8\,(A+4\,i\,B)\,c^5\,x}{a^3}-\frac{8\,(i\,A-4\,B)\,c^5\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]}{a^3\,f}+\frac{16\,(A+i\,B)\,c^5}{3\,a^3\,f\,(i-\mathrm{Tan}[e+f\,x])^3}+$$
$$\frac{8\,(2\,i\,A-3\,B)\,c^5}{a^3\,f\,(i-\mathrm{Tan}[e+f\,x])^2}-\frac{8\,(3\,A+7\,i\,B)\,c^5}{a^3\,f\,(i-\mathrm{Tan}[e+f\,x])}+\frac{(A+8\,i\,B)\,c^5\,\mathrm{Tan}[e+f\,x]}{a^3\,f}+\frac{B\,c^5\,\mathrm{Tan}[e+f\,x]^2}{2\,a^3\,f}$$

Result (type 3, 1496 leaves):

$$((A+3iB)\,Cos[2fx]\,Sec[e+fx]^2\,(6ic^5\,Cos[e]-6c^5\,Sin[e])\,(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx]))\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$((-iA+2B)\,Cos[4fx]\,Sec[e+fx]^2\,(2c^5\,Cos[e]-2ic^5\,Sin[e])\,(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx]))\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+\left(Sec[e+fx]^2\left(-iAc^5\,Cos\left[\frac{3e}{2}\right]+4Bc^5\,Cos\left[\frac{3e}{2}\right]+Ac^5\,Sin\left[\frac{3e}{2}\right]+4iBc^5\,Sin\left[\frac{3e}{2}\right]\right)\left(8\,Cos\left[\frac{3e}{2}\right]Log[Cos[e+fx]]+8i\,Log[Cos[e+fx]]\,Sin\left[\frac{3e}{2}\right]\right)(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx])\right)\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$\left((A+iB)\,Cos[6fx]\,Sec[e+fx]^2\left(\frac{2}{3}ic^5\,Cos[3e]+\frac{2}{3}c^5\,Sin[3e]\right)(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx])\right)\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$\frac{Sec[e+fx]^4\left(\frac{1}{2}Bc^5\,Cos[3e]+\frac{1}{2}iBc^5\,Sin[3e]\right)(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx])}{f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3}+$$
$$((A+4iB)\,Sec[e+fx]^2\,(-8c^5fx\,Cos[3e]-8ic^5fx\,Sin[3e])\,(Cos[fx]+i\,Sin[fx])^3\,(A+B\,Tan[e+fx]))\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$((A+3iB)\,Sec[e+fx]^2\,(6c^5\,Cos[e]+6ic^5\,Sin[e])\,(Cos[fx]+i\,Sin[fx])^3\,Sin[2fx]\,(A+B\,Tan[e+fx]))\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$((A+2iB)\,Sec[e+fx]^2\,(-2c^5\,Cos[e]+2ic^5\,Sin[e])\,(Cos[fx]+i\,Sin[fx])^3\,Sin[4fx]\,(A+B\,Tan[e+fx]))\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$\left((A+iB)\,Sec[e+fx]^2\left(\frac{2}{3}c^5\,Cos[3e]-\frac{2}{3}ic^5\,Sin[3e]\right)(Cos[fx]+i\,Sin[fx])^3\,Sin[6fx]\,(A+B\,Tan[e+fx])\right)\Big/ (f\,(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3)+$$
$$\left(Sec[e+fx]^3\,(Cos[fx]+i\,Sin[fx])^3\left(\frac{1}{2}iAc^5\,Cos[3e-fx]-4Bc^5\,Cos[3e-fx]-\frac{1}{2}iAc^5\,Cos[3e+fx]+4Bc^5\,Cos[3e+fx]-\frac{1}{2}Ac^5\,Sin[3e-fx]-4iBc^5\,Sin[3e-fx]+\frac{1}{2}Ac^5\,Sin[3e+fx]+4iBc^5\,Sin[3e+fx]\right)(A+B\,Tan[e+fx])\right)\Big/ \left(f\left(Cos\left[\frac{e}{2}\right]-Sin\left[\frac{e}{2}\right]\right)\left(Cos\left[\frac{e}{2}\right]+Sin\left[\frac{e}{2}\right]\right)(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3\right)+$$
$$\frac{1}{(A\,Cos[e+fx]+B\,Sin[e+fx])\,(a+ia\,Tan[e+fx])^3}x\,Sec[e+fx]^2\,(Cos[fx]+i\,Sin[fx])^3\,(4Ac^5\,Cos[e]+16iBc^5\,Cos[e]-4Ac^5\,Cos[e]^3-16iBc^5\,Cos[e]^3+8iAc^5\,Sin[e]-32Bc^5\,Sin[e]-16iAc^5\,Cos[e]^2\,Sin[e]+64Bc^5\,Cos[e]^2\,Sin[e]+24Ac^5\,Cos[e]\,Sin[e]^2+96iBc^5\,Cos[e]\,Sin[e]^2+16iAc^5\,Sin[e]^3-64Bc^5\,Sin[e]^3-4Ac^5\,Sin[e]\,Tan[e]-16iBc^5\,Sin[e]\,Tan[e]-4Ac^5\,Sin[e]^3\,Tan[e]-16iBc^5\,Sin[e]^3\,Tan[e]+i\,(A+4iB)\,(8c^5\,Cos[3e]+8ic^5\,Sin[3e])\,Tan[e])\,(A+B\,Tan[e+fx])$$

- **Problem 729: Result more than twice size of optimal antiderivative.**

$$\int\frac{(A+B\,Tan[e+fx])\,(c-ic\,Tan[e+fx])^4}{(a+ia\,Tan[e+fx])^3}\,dx$$

Optimal (type 3, 164 leaves, 3 steps) :

$$-\frac{(A+7\,i\,B)\,c^4\,x}{a^3}-\frac{(i\,A-7\,B)\,c^4\,\text{Log}[\text{Cos}[e+f\,x]]}{a^3\,f}+\frac{8\,(A+i\,B)\,c^4}{3\,a^3\,f\,(i-\text{Tan}[e+f\,x])^3}+\frac{2\,(3\,i\,A-5\,B)\,c^4}{a^3\,f\,(i-\text{Tan}[e+f\,x])^2}-\frac{6\,(A+3\,i\,B)\,c^4}{a^3\,f\,(i-\text{Tan}[e+f\,x])}+\frac{i\,B\,c^4\,\text{Tan}[e+f\,x]}{a^3\,f}$$

Result (type 3, 1239 leaves) :

$$c^4 \left(\frac{(A+5\,i\,B)\,\mathrm{Cos}[2\,f\,x]\,\mathrm{Sec}[e+f\,x]^2\,(i\,\mathrm{Cos}[e]-\mathrm{Sin}[e])\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3} + \right.$$

$$\frac{(-i\,A+3\,B)\,\mathrm{Cos}[4\,f\,x]\,\mathrm{Sec}[e+f\,x]^2\left(\frac{\mathrm{Cos}[e]}{2}-\frac{1}{2}\,i\,\mathrm{Sin}[e]\right)(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3} +$$

$$\left(\mathrm{Sec}[e+f\,x]^2\left(-i\,A\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]+7\,B\,\mathrm{Cos}\left[\frac{3\,e}{2}\right]+A\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]+7\,i\,B\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{3\,e}{2}\right]\mathrm{Log}[\mathrm{Cos}[e+f\,x]]+i\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]\,\mathrm{Sin}\left[\frac{3\,e}{2}\right]\right)\right.$$

$$\left.(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/\left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\left((A+i\,B)\,\mathrm{Cos}[6\,f\,x]\,\mathrm{Sec}[e+f\,x]^2\left(\frac{1}{3}\,i\,\mathrm{Cos}[3\,e]+\frac{1}{3}\,\mathrm{Sin}[3\,e]\right)(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/$$

$$\left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\frac{(A+7\,i\,B)\,\mathrm{Sec}[e+f\,x]^2\,(-f\,x\,\mathrm{Cos}[3\,e]-i\,f\,x\,\mathrm{Sin}[3\,e])\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}+$$

$$\frac{(A+5\,i\,B)\,\mathrm{Sec}[e+f\,x]^2\,(\mathrm{Cos}[e]+i\,\mathrm{Sin}[e])\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[2\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}+$$

$$\frac{(A+3\,i\,B)\,\mathrm{Sec}[e+f\,x]^2\left(-\frac{\mathrm{Cos}[e]}{2}+\frac{1}{2}\,i\,\mathrm{Sin}[e]\right)(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[4\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])}{f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}+$$

$$\left((A+i\,B)\,\mathrm{Sec}[e+f\,x]^2\left(\frac{1}{3}\,\mathrm{Cos}[3\,e]-\frac{1}{3}\,i\,\mathrm{Sin}[3\,e]\right)(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,\mathrm{Sin}[6\,f\,x]\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/$$

$$\left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\left(\mathrm{Sec}[e+f\,x]^3\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\left(-\frac{1}{2}\,B\,\mathrm{Cos}[3\,e-f\,x]+\frac{1}{2}\,B\,\mathrm{Cos}[3\,e+f\,x]-\frac{1}{2}\,i\,B\,\mathrm{Sin}[3\,e-f\,x]+\frac{1}{2}\,i\,B\,\mathrm{Sin}[3\,e+f\,x]\right)\right.$$

$$\left.(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/\left(f\left(\mathrm{Cos}\left[\frac{e}{2}\right]-\mathrm{Sin}\left[\frac{e}{2}\right]\right)\left(\mathrm{Cos}\left[\frac{e}{2}\right]+\mathrm{Sin}\left[\frac{e}{2}\right]\right)(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3\right)+$$

$$\frac{1}{(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^3}\,x\,\mathrm{Sec}[e+f\,x]^2\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3$$

$$\left(\frac{1}{2}\,A\,\mathrm{Cos}[e]+\frac{7}{2}\,i\,B\,\mathrm{Cos}[e]-\frac{1}{2}\,A\,\mathrm{Cos}[e]^3-\frac{7}{2}\,i\,B\,\mathrm{Cos}[e]^3+i\,A\,\mathrm{Sin}[e]-7\,B\,\mathrm{Sin}[e]-2\,i\,A\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]+14\,B\,\mathrm{Cos}[e]^2\,\mathrm{Sin}[e]+\right.$$

$$3\,A\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^2+21\,i\,B\,\mathrm{Cos}[e]\,\mathrm{Sin}[e]^2+2\,i\,A\,\mathrm{Sin}[e]^3-14\,B\,\mathrm{Sin}[e]^3-\frac{1}{2}\,A\,\mathrm{Sin}[e]\,\mathrm{Tan}[e]-\frac{7}{2}\,i\,B\,\mathrm{Sin}[e]\,\mathrm{Tan}[e]-$$

$$\left.\left.\frac{1}{2}\,A\,\mathrm{Sin}[e]^3\,\mathrm{Tan}[e]-\frac{7}{2}\,i\,B\,\mathrm{Sin}[e]^3\,\mathrm{Tan}[e]+i\,(A+7\,i\,B)\,(\mathrm{Cos}[3\,e]+i\,\mathrm{Sin}[3\,e])\,\mathrm{Tan}[e]\right)(A+B\,\mathrm{Tan}[e+f\,x])\right)$$

Problem 756: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^3 (A+B \operatorname{Tan}[e+f x]) (c-i c \operatorname{Tan}[e+f x])^{7/2} \, dx$$

Optimal (type 3, 144 leaves, 3 steps):

$$\frac{8 a^3 (i A+B) (c-i c \operatorname{Tan}[e+f x])^{7/2}}{7 f}-\frac{8 a^3 (i A+2 B) (c-i c \operatorname{Tan}[e+f x])^{9/2}}{9 c f}+\frac{2 a^3 (i A+5 B) (c-i c \operatorname{Tan}[e+f x])^{11/2}}{11 c^2 f}-\frac{2 a^3 B (c-i c \operatorname{Tan}[e+f x])^{13/2}}{13 c^3 f}$$

Result (type 3, 441 leaves):

$$\frac{1}{f (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^3 (A \operatorname{Cos}[e+f x]+B \operatorname{Sin}[e+f x])} \operatorname{Cos}[e+f x]^4 \left((13 A+i B) \operatorname{Sec}[e] \operatorname{Sec}[e+f x]^4 (\operatorname{Cos}[e]-9 i \operatorname{Sin}[e]) \left(\frac{2 i c^3 \operatorname{Cos}[3 e]}{1287}+\frac{2 c^3 \operatorname{Sin}[3 e]}{1287}\right)+\right.$$
$$(13 A+i B) \operatorname{Sec}[e] \operatorname{Sec}[e+f x]^2 (\operatorname{Cos}[e]-5 i \operatorname{Sin}[e]) \left(\frac{32 i c^3 \operatorname{Cos}[3 e]}{9009}+\frac{32 c^3 \operatorname{Sin}[3 e]}{9009}\right)+$$
$$\operatorname{Sec}[e+f x]^6 \left(\frac{2}{13} B c^3 \operatorname{Cos}[3 e]-\frac{2}{13} i B c^3 \operatorname{Sin}[3 e]\right)+(13 A+i B) \operatorname{Sec}[e] \left(\frac{256 i c^3 \operatorname{Cos}[4 e]}{9009}+\frac{256 c^3 \operatorname{Sin}[4 e]}{9009}\right)+$$
$$\operatorname{Sec}[e] \operatorname{Sec}[e+f x]^5 \left(\frac{2}{143} \operatorname{Cos}[3 e]-\frac{2}{143} i \operatorname{Sin}[3 e]\right) \left(13 A c^3 \operatorname{Sin}[f x]+i B c^3 \operatorname{Sin}[f x]\right)+$$
$$\operatorname{Sec}[e] \operatorname{Sec}[e+f x]^3 \left(\frac{160 \operatorname{Cos}[3 e]}{9009}-\frac{160 i \operatorname{Sin}[3 e]}{9009}\right) \left(13 A c^3 \operatorname{Sin}[f x]+i B c^3 \operatorname{Sin}[f x]\right)+$$
$$\left.\operatorname{Sec}[e] \operatorname{Sec}[e+f x] \left(\frac{256 \operatorname{Cos}[3 e]}{9009}-\frac{256 i \operatorname{Sin}[3 e]}{9009}\right) \left(13 A c^3 \operatorname{Sin}[f x]+i B c^3 \operatorname{Sin}[f x]\right)\right)$$
$$\sqrt{\operatorname{Sec}[e+f x] (c \operatorname{Cos}[e+f x]-i c \operatorname{Sin}[e+f x])} (a+i a \operatorname{Tan}[e+f x])^3 (A+B \operatorname{Tan}[e+f x])$$

Problem 757: Result more than twice size of optimal antiderivative.

$$\int (a+i a \operatorname{Tan}[e+f x])^3 (A+B \operatorname{Tan}[e+f x]) (c-i c \operatorname{Tan}[e+f x])^{5/2} \, dx$$

Optimal (type 3, 144 leaves, 3 steps):

$$\frac{8 a^3 (i A+B) (c-i c \operatorname{Tan}[e+f x])^{5/2}}{5 f}-\frac{8 a^3 (i A+2 B) (c-i c \operatorname{Tan}[e+f x])^{7/2}}{7 c f}+\frac{2 a^3 (i A+5 B) (c-i c \operatorname{Tan}[e+f x])^{9/2}}{9 c^2 f}-\frac{2 a^3 B (c-i c \operatorname{Tan}[e+f x])^{11/2}}{11 c^3 f}$$

Result (type 3, 391 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+\text{i}\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^4\left((11\,\text{i}\,A+B)\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^2\,(\text{Cos}[e]-5\,\text{i}\,\text{Sin}[e])\left(\frac{16\,c^2\,\text{Cos}[3\,e]}{3465}-\frac{16\,\text{i}\,c^2\,\text{Sin}[3\,e]}{3465}\right)+\right.$$

$$\text{Sec}[e]\,\text{Sec}[e+f\,x]^4\,(11\,\text{i}\,A\,\text{Cos}[e]+10\,B\,\text{Cos}[e]+9\,\text{i}\,B\,\text{Sin}[e])\left(\frac{2}{99}\,c^2\,\text{Cos}[3\,e]-\frac{2}{99}\,\text{i}\,c^2\,\text{Sin}[3\,e]\right)+$$

$$(11\,\text{i}\,A+B)\,\text{Sec}[e]\left(\frac{128\,c^2\,\text{Cos}[4\,e]}{3465}-\frac{128\,\text{i}\,c^2\,\text{Sin}[4\,e]}{3465}\right)+\text{i}\,B\,c^2\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^5\left(\frac{2}{11}\,\text{Cos}[3\,e]-\frac{2}{11}\,\text{i}\,\text{Sin}[3\,e]\right)\text{Sin}[f\,x]+$$

$$\text{Sec}[e]\,\text{Sec}[e+f\,x]^3\left(\frac{16}{693}\,\text{Cos}[3\,e]-\frac{16}{693}\,\text{i}\,\text{Sin}[3\,e]\right)\left(11\,A\,c^2\,\text{Sin}[f\,x]-\text{i}\,B\,c^2\,\text{Sin}[f\,x]\right)+$$

$$\left.\text{Sec}[e]\,\text{Sec}[e+f\,x]\left(\frac{128\,\text{Cos}[3\,e]}{3465}-\frac{128\,\text{i}\,\text{Sin}[3\,e]}{3465}\right)\left(11\,A\,c^2\,\text{Sin}[f\,x]-\text{i}\,B\,c^2\,\text{Sin}[f\,x]\right)\right)$$

$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-\text{i}\,c\,\text{Sin}[e+f\,x])}\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^3\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 758: Result more than twice size of optimal antiderivative.**

$$\int(a+\text{i}\,a\,\text{Tan}[e+f\,x])^3\,(A+B\,\text{Tan}[e+f\,x])\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 144 leaves, 3 steps):

$$\frac{8\,a^3\,(\text{i}\,A+B)\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{3/2}}{3\,f}-\frac{8\,a^3\,(\text{i}\,A+2\,B)\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{5/2}}{5\,c\,f}+$$

$$\frac{2\,a^3\,(\text{i}\,A+5\,B)\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{7/2}}{7\,c^2\,f}-\frac{2\,a^3\,B\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{9/2}}{9\,c^3\,f}$$

Result (type 3, 319 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+\text{i}\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^4\left(\text{Sec}[e]\,\text{Sec}[e+f\,x]^2\,(117\,\text{i}\,A\,\text{Cos}[e]+109\,B\,\text{Cos}[e]-45\,A\,\text{Sin}[e]+85\,\text{i}\,B\,\text{Sin}[e])\left(\frac{2}{315}\,c\,\text{Cos}[3\,e]-\frac{2}{315}\,\text{i}\,c\,\text{Sin}[3\,e]\right)+\right.$$

$$\text{Sec}[e+f\,x]^4\left(-\frac{2}{9}\,B\,c\,\text{Cos}[3\,e]+\frac{2}{9}\,\text{i}\,B\,c\,\text{Sin}[3\,e]\right)+(3\,\text{i}\,A+B)\,\text{Sec}[e]\left(\frac{64}{315}\,c\,\text{Cos}[4\,e]-\frac{64}{315}\,\text{i}\,c\,\text{Sin}[4\,e]\right)+$$

$$\text{Sec}[e]\,\text{Sec}[e+f\,x]\left(\frac{64}{315}\,\text{Cos}[3\,e]-\frac{64}{315}\,\text{i}\,\text{Sin}[3\,e]\right)(3\,A\,c\,\text{Sin}[f\,x]-\text{i}\,B\,c\,\text{Sin}[f\,x])+$$

$$\left.\text{Sec}[e]\,\text{Sec}[e+f\,x]^3\left(-\frac{2}{63}\,\text{Cos}[3\,e]+\frac{2}{63}\,\text{i}\,\text{Sin}[3\,e]\right)(9\,A\,c\,\text{Sin}[f\,x]-17\,\text{i}\,B\,c\,\text{Sin}[f\,x])\right)$$

$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-\text{i}\,c\,\text{Sin}[e+f\,x])}\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^3\,(A+B\,\text{Tan}[e+f\,x])$$

Problem 761: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x])}{(c - i c \operatorname{Tan}[e + f x])^{3/2}} \, dx$$

Optimal (type 3, 140 leaves, 3 steps):

$$-\frac{8 a^3 (i A + B)}{3 f (c - i c \operatorname{Tan}[e + f x])^{3/2}} + \frac{8 a^3 (i A + 2 B)}{c f \sqrt{c - i c \operatorname{Tan}[e + f x]}} + \frac{2 a^3 (i A + 5 B) \sqrt{c - i c \operatorname{Tan}[e + f x]}}{c^2 f} - \frac{2 a^3 B (c - i c \operatorname{Tan}[e + f x])^{3/2}}{3 c^3 f}$$

Result (type 3, 333 leaves):

$$\frac{1}{f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3 (A \operatorname{Cos}[e + f x] + B \operatorname{Sin}[e + f x])} \operatorname{Cos}[e + f x]^4 \left((2 i A + 5 B) \operatorname{Cos}[2 f x] \left(\frac{4 \operatorname{Cos}[e]}{3 c^2} - \frac{4 i \operatorname{Sin}[e]}{3 c^2}\right) + (A - i B) \operatorname{Cos}[4 f x] \left(-\frac{2 i \operatorname{Cos}[e]}{3 c^2} + \frac{2 \operatorname{Sin}[e]}{3 c^2}\right) + \operatorname{Sec}[e] (8 i A \operatorname{Cos}[e] + 25 B \operatorname{Cos}[e] + i B \operatorname{Sin}[e]) \left(\frac{2 \operatorname{Cos}[3 e]}{3 c^2} - \frac{2 i \operatorname{Sin}[3 e]}{3 c^2}\right) + i B \operatorname{Sec}[e] \operatorname{Sec}[e + f x] \left(\frac{2 \operatorname{Cos}[3 e]}{3 c^2} - \frac{2 i \operatorname{Sin}[3 e]}{3 c^2}\right) \operatorname{Sin}[f x] + (2 A - 5 i B) \left(-\frac{4 \operatorname{Cos}[e]}{3 c^2} + \frac{4 i \operatorname{Sin}[e]}{3 c^2}\right) \operatorname{Sin}[2 f x] + (A - i B) \left(\frac{2 \operatorname{Cos}[e]}{3 c^2} + \frac{2 i \operatorname{Sin}[e]}{3 c^2}\right) \operatorname{Sin}[4 f x]\right) \sqrt{\operatorname{Sec}[e + f x] (c \operatorname{Cos}[e + f x] - i c \operatorname{Sin}[e + f x])} (a + i a \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x])$$

Problem 762: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + i a \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x])}{(c - i c \operatorname{Tan}[e + f x])^{5/2}} \, dx$$

Optimal (type 3, 140 leaves, 3 steps):

$$-\frac{8 a^3 (i A + B)}{5 f (c - i c \operatorname{Tan}[e + f x])^{5/2}} + \frac{8 a^3 (i A + 2 B)}{3 c f (c - i c \operatorname{Tan}[e + f x])^{3/2}} - \frac{2 a^3 (i A + 5 B)}{c^2 f \sqrt{c - i c \operatorname{Tan}[e + f x]}} - \frac{2 a^3 B \sqrt{c - i c \operatorname{Tan}[e + f x]}}{c^3 f}$$

Result (type 3, 354 leaves):

$$\frac{1}{f (\operatorname{Cos}[f x] + i \operatorname{Sin}[f x])^3 (A \operatorname{Cos}[e + f x] + B \operatorname{Sin}[e + f x])} \operatorname{Cos}[e + f x]^4 \left((i A + 11 B) \operatorname{Cos}[4 f x] \left(\frac{\operatorname{Cos}[e]}{15 c^3} + \frac{i \operatorname{Sin}[e]}{15 c^3}\right) + (i A + 11 B) \operatorname{Cos}[2 f x] \left(-\frac{4 \operatorname{Cos}[e]}{15 c^3} + \frac{4 i \operatorname{Sin}[e]}{15 c^3}\right) + (i A + 11 B) \left(-\frac{8 \operatorname{Cos}[3 e]}{15 c^3} + \frac{8 i \operatorname{Sin}[3 e]}{15 c^3}\right) + (A - i B) \operatorname{Cos}[6 f x] \left(-\frac{i \operatorname{Cos}[3 e]}{5 c^3} + \frac{\operatorname{Sin}[3 e]}{5 c^3}\right) + (A - 11 i B) \left(\frac{4 \operatorname{Cos}[e]}{15 c^3} - \frac{4 i \operatorname{Sin}[e]}{15 c^3}\right) \operatorname{Sin}[2 f x] + (A - 11 i B) \left(-\frac{\operatorname{Cos}[e]}{15 c^3} - \frac{i \operatorname{Sin}[e]}{15 c^3}\right) \operatorname{Sin}[4 f x] + (A - i B) \left(\frac{\operatorname{Cos}[3 e]}{5 c^3} + \frac{i \operatorname{Sin}[3 e]}{5 c^3}\right) \operatorname{Sin}[6 f x]\right) \sqrt{\operatorname{Sec}[e + f x] (c \operatorname{Cos}[e + f x] - i c \operatorname{Sin}[e + f x])} (a + i a \operatorname{Tan}[e + f x])^3 (A + B \operatorname{Tan}[e + f x])$$

Problem 763: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i a \operatorname{Tan}[e+f x])^3 (A+B \operatorname{Tan}[e+f x])}{(c-i c \operatorname{Tan}[e+f x])^{7/2}} \, dx$$

Optimal (type 3, 142 leaves, 3 steps):

$$-\frac{8 a^3 (i A+B)}{7 f (c-i c \operatorname{Tan}[e+f x])^{7/2}}+\frac{8 a^3 (i A+2 B)}{5 c f (c-i c \operatorname{Tan}[e+f x])^{5/2}}-\frac{2 a^3 (i A+5 B)}{3 c^2 f (c-i c \operatorname{Tan}[e+f x])^{3/2}}+\frac{2 a^3 B}{c^3 f \sqrt{c-i c \operatorname{Tan}[e+f x]}}$$

Result (type 3, 432 leaves):

$$\frac{1}{f (\operatorname{Cos}[f x]+i \operatorname{Sin}[f x])^3 (A \operatorname{Cos}[e+f x]+B \operatorname{Sin}[e+f x])}$$
$$\operatorname{Cos}[e+f x]^4 \left((A+13 i B) \operatorname{Cos}[4 f x] \left(\frac{i \operatorname{Cos}[e]}{210 c^4}-\frac{\operatorname{Sin}[e]}{210 c^4}\right)+(-i A+13 B) \operatorname{Cos}[2 f x] \left(\frac{2 \operatorname{Cos}[e]}{105 c^4}-\frac{2 i \operatorname{Sin}[e]}{105 c^4}\right)+\right.$$
$$(-3 i A+4 B) \operatorname{Cos}[6 f x] \left(\frac{\operatorname{Cos}[3 e]}{35 c^4}+\frac{i \operatorname{Sin}[3 e]}{35 c^4}\right)+(-i A+13 B) \left(\frac{4 \operatorname{Cos}[3 e]}{105 c^4}-\frac{4 i \operatorname{Sin}[3 e]}{105 c^4}\right)+(A-i B) \operatorname{Cos}[8 f x] \left(-\frac{i \operatorname{Cos}[5 e]}{14 c^4}+\frac{\operatorname{Sin}[5 e]}{14 c^4}\right)+$$
$$(A+13 i B) \left(\frac{2 \operatorname{Cos}[e]}{105 c^4}-\frac{2 i \operatorname{Sin}[e]}{105 c^4}\right) \operatorname{Sin}[2 f x]+(A+13 i B) \left(-\frac{\operatorname{Cos}[e]}{210 c^4}-\frac{i \operatorname{Sin}[e]}{210 c^4}\right) \operatorname{Sin}[4 f x]+$$
$$\left.(3 A+4 i B) \left(\frac{\operatorname{Cos}[3 e]}{35 c^4}+\frac{i \operatorname{Sin}[3 e]}{35 c^4}\right) \operatorname{Sin}[6 f x]+(A-i B) \left(\frac{\operatorname{Cos}[5 e]}{14 c^4}+\frac{i \operatorname{Sin}[5 e]}{14 c^4}\right) \operatorname{Sin}[8 f x]\right)$$
$$\sqrt{\operatorname{Sec}[e+f x] (c \operatorname{Cos}[e+f x]-i c \operatorname{Sin}[e+f x])} (a+i a \operatorname{Tan}[e+f x])^3 (A+B \operatorname{Tan}[e+f x])$$

Problem 764: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B \operatorname{Tan}[e+f x]) (c-i c \operatorname{Tan}[e+f x])^{7/2}}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 3, 220 leaves, 7 steps):

$$-\frac{2 \sqrt{2} (5 i A-9 B) c^{7/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c-i c \operatorname{Tan}[e+f x]}}{\sqrt{2} \sqrt{c}}\right]}{a f}+\frac{2 (5 i A-9 B) c^3 \sqrt{c-i c \operatorname{Tan}[e+f x]}}{a f}+$$
$$\frac{(5 i A-9 B) c^2 (c-i c \operatorname{Tan}[e+f x])^{3/2}}{3 a f}+\frac{(5 i A-9 B) c (c-i c \operatorname{Tan}[e+f x])^{5/2}}{10 a f}+\frac{(i A-B) (c-i c \operatorname{Tan}[e+f x])^{7/2}}{2 a f (1+i \operatorname{Tan}[e+f x])}$$

Result (type 1, 1 leaves):

???

Problem 765: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B \operatorname{Tan}[e+f x]) (c-i c \operatorname{Tan}[e+f x])^{5/2}}{a+i a \operatorname{Tan}[e+f x]} \, dx$$

Optimal (type 3, 180 leaves, 6 steps):

$$-\frac{\sqrt{2}\,(3\,i\,A-7\,B)\,c^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{a\,f}+\frac{(3\,i\,A-7\,B)\,c^2\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{a\,f}+\frac{(3\,i\,A-7\,B)\,c\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{6\,a\,f}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{2\,a\,f\,(1+i\,\text{Tan}[e+f\,x])}$$

Result (type 1, 1 leaves):

???

Problem 766: Attempted integration timed out after 120 seconds.

$$\int\frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{a+i\,a\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 144 leaves, 5 steps):

$$-\frac{(i\,A-5\,B)\,c^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{\sqrt{2}\,a\,f}+\frac{(i\,A-5\,B)\,c\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{2\,a\,f}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{2\,a\,f\,(1+i\,\text{Tan}[e+f\,x])}$$

Result (type 1, 1 leaves):

???

Problem 771: Attempted integration timed out after 120 seconds.

$$\int\frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 275 leaves, 8 steps):

$$\frac{7\,(5\,i\,A-13\,B)\,c^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{\sqrt{2}\,a^2\,f}-\frac{7\,(5\,i\,A-13\,B)\,c^4\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{2\,a^2\,f}-\frac{7\,(5\,i\,A-13\,B)\,c^3\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{12\,a^2\,f}-\frac{7\,(5\,i\,A-13\,B)\,c^2\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{40\,a^2\,f}-\frac{(5\,i\,A-13\,B)\,c\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{8\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}{4\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])^2}$$

Result (type 1, 1 leaves):

???

Problem 772: Attempted integration timed out after 120 seconds.

$$\int\frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 238 leaves, 7 steps):

$$\frac{5\,(3\,i\,A-11\,B)\,c^{7/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{2\,\sqrt{2}\,a^2\,f}-\frac{5\,(3\,i\,A-11\,B)\,c^3\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{4\,a^2\,f}-$$
$$\frac{5\,(3\,i\,A-11\,B)\,c^2\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{24\,a^2\,f}-\frac{(3\,i\,A-11\,B)\,c\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{8\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{4\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])^2}$$

Result (type 1, 1 leaves) :

???

Problem 773: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 199 leaves, 6 steps) :

$$\frac{3\,(i\,A-9\,B)\,c^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{4\,\sqrt{2}\,a^2\,f}-\frac{3\,(i\,A-9\,B)\,c^2\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{8\,a^2\,f}-$$
$$\frac{(i\,A-9\,B)\,c\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{8\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{4\,a^2\,f\,(1+i\,\text{Tan}[e+f\,x])^2}$$

Result (type 1, 1 leaves) :

???

Problem 779: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 291 leaves, 8 steps) :

$$-\frac{35\,(i\,A-5\,B)\,c^{9/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{4\,\sqrt{2}\,a^3\,f}+\frac{35\,(i\,A-5\,B)\,c^4\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{8\,a^3\,f}+\frac{35\,(i\,A-5\,B)\,c^3\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{48\,a^3\,f}+$$
$$\frac{7\,(i\,A-5\,B)\,c^2\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{16\,a^3\,f\,(1+i\,\text{Tan}[e+f\,x])}-\frac{(i\,A-5\,B)\,c\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{8\,a^3\,f\,(1+i\,\text{Tan}[e+f\,x])^2}+\frac{(i\,A-B)\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}{6\,a^3\,f\,(1+i\,\text{Tan}[e+f\,x])^3}$$

Result (type 1, 1 leaves) :

???

Problem 780: Attempted integration timed out after 120 seconds.

$$\int \frac{(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{(a+i\,a\,\text{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 252 leaves, 7 steps):

$$-\frac{5\,(\mathrm{i}\,A-13\,B)\,c^{7/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{c}}\right]}{8\,\sqrt{2}\,a^3\,f}+\frac{5\,(\mathrm{i}\,A-13\,B)\,c^3\,\sqrt{c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x]}}{16\,a^3\,f}+\frac{5\,(\mathrm{i}\,A-13\,B)\,c^2\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{3/2}}{48\,a^3\,f\,(1+\mathrm{i}\,\mathrm{Tan}[e+f\,x])}-\frac{(\mathrm{i}\,A-13\,B)\,c\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{5/2}}{24\,a^3\,f\,(1+\mathrm{i}\,\mathrm{Tan}[e+f\,x])^2}+\frac{(\mathrm{i}\,A-B)\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{7/2}}{6\,a^3\,f\,(1+\mathrm{i}\,\mathrm{Tan}[e+f\,x])^3}$$

Result (type 1, 1 leaves):

???

Problem 796: Result more than twice size of optimal antiderivative.

$$\int (a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x])\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 226 leaves, 7 steps):

$$-\frac{a^{3/2}\,(4\,\mathrm{i}\,A-B)\,c^{5/2}\,\mathrm{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x]}}\right]}{4\,f}+\frac{a\,(4\,A+\mathrm{i}\,B)\,c^2\,\mathrm{Tan}[e+f\,x]\,\sqrt{a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x]}}{8\,f}-\frac{(4\,\mathrm{i}\,A-B)\,c\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{3/2}}{12\,f}+\frac{B\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{5/2}}{4\,f}$$

Result (type 3, 454 leaves):

$$\left((-4\,\mathrm{i}\,A+B)\,c^3\,e^{-\mathrm{i}\,(2\,e+f\,x)}\,\sqrt{e^{\mathrm{i}\,f\,x}}\,\sqrt{\frac{e^{\mathrm{i}\,(e+f\,x)}}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\,\mathrm{ArcTan}\left[e^{\mathrm{i}\,(e+f\,x)}\right]\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x])\right)\Big/$$
$$\left(4\,\sqrt{\frac{c}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\,f\,\mathrm{Sec}[e+f\,x]^{5/2}\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^{3/2}\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\right)+$$
$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}\,\mathrm{Cos}[e+f\,x]^2\,\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]-\mathrm{i}\,c\,\mathrm{Sin}[e+f\,x])}$$
$$\left(\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^2\,(-4\,\mathrm{i}\,A\,\mathrm{Cos}[e]+4\,B\,\mathrm{Cos}[e]-3\,\mathrm{i}\,B\,\mathrm{Sin}[e])\left(\frac{1}{12}\,c^2\,\mathrm{Cos}[e]-\frac{1}{12}\,\mathrm{i}\,c^2\,\mathrm{Sin}[e]\right)-\right.$$
$$\mathrm{i}\,B\,c^2\,\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]^3\left(\frac{\mathrm{Cos}[e]}{4}-\frac{1}{4}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\mathrm{Sin}[f\,x]+\mathrm{Sec}[e]\,\mathrm{Sec}[e+f\,x]\left(\frac{\mathrm{Cos}[e]}{8}-\frac{1}{8}\,\mathrm{i}\,\mathrm{Sin}[e]\right)\left(4\,A\,c^2\,\mathrm{Sin}[f\,x]+\mathrm{i}\,B\,c^2\,\mathrm{Sin}[f\,x]\right)+$$
$$\left.(4\,A+\mathrm{i}\,B)\left(\frac{1}{8}\,c^2\,\mathrm{Cos}[e]-\frac{1}{8}\,\mathrm{i}\,c^2\,\mathrm{Sin}[e]\right)\mathrm{Tan}[e]\right)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x])$$

Problem 804: Result more than twice size of optimal antiderivative.

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x])}{(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}\,dx$$

Optimal (type 3, 261 leaves, 6 steps):

$$-\frac{(i A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}{11\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{11/2}}-\frac{(4\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}{99\,c\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}-\frac{(4\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}{231\,c^2\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}-\frac{2\,(4\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}{1155\,c^3\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}-\frac{2\,(4\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}}{3465\,c^4\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}$$

Result (type 3, 569 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}\text{Cos}[e+f\,x]^2\left((-i\,A+B)\,\text{Cos}[2\,f\,x]\left(\frac{\text{Cos}[e]}{96\,c^6}+\frac{i\,\text{Sin}[e]}{96\,c^6}\right)+(-17\,i\,A+11\,B)\,\text{Cos}[4\,f\,x]\left(\frac{\text{Cos}[3\,e]}{480\,c^6}+\frac{i\,\text{Sin}[3\,e]}{480\,c^6}\right)+\right.$$
$$(-29\,i\,A+7\,B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[5\,e]}{560\,c^6}+\frac{i\,\text{Sin}[5\,e]}{560\,c^6}\right)+(41\,A-7\,i\,B)\,\text{Cos}[8\,f\,x]\left(-\frac{i\,\text{Cos}[7\,e]}{1008\,c^6}+\frac{\text{Sin}[7\,e]}{1008\,c^6}\right)+$$
$$(53\,A-31\,i\,B)\,\text{Cos}[10\,f\,x]\left(-\frac{i\,\text{Cos}[9\,e]}{3168\,c^6}+\frac{\text{Sin}[9\,e]}{3168\,c^6}\right)+(A-i\,B)\,\text{Cos}[12\,f\,x]\left(-\frac{i\,\text{Cos}[11\,e]}{352\,c^6}+\frac{\text{Sin}[11\,e]}{352\,c^6}\right)+$$
$$(A+i\,B)\left(\frac{\text{Cos}[e]}{96\,c^6}+\frac{i\,\text{Sin}[e]}{96\,c^6}\right)\text{Sin}[2\,f\,x]+(17\,A+11\,i\,B)\left(\frac{\text{Cos}[3\,e]}{480\,c^6}+\frac{i\,\text{Sin}[3\,e]}{480\,c^6}\right)\text{Sin}[4\,f\,x]+$$
$$(29\,A+7\,i\,B)\left(\frac{\text{Cos}[5\,e]}{560\,c^6}+\frac{i\,\text{Sin}[5\,e]}{560\,c^6}\right)\text{Sin}[6\,f\,x]+(41\,A-7\,i\,B)\left(\frac{\text{Cos}[7\,e]}{1008\,c^6}+\frac{i\,\text{Sin}[7\,e]}{1008\,c^6}\right)\text{Sin}[8\,f\,x]+$$
$$\left.(53\,A-31\,i\,B)\left(\frac{\text{Cos}[9\,e]}{3168\,c^6}+\frac{i\,\text{Sin}[9\,e]}{3168\,c^6}\right)\text{Sin}[10\,f\,x]+(A-i\,B)\left(\frac{\text{Cos}[11\,e]}{352\,c^6}+\frac{i\,\text{Sin}[11\,e]}{352\,c^6}\right)\text{Sin}[12\,f\,x]\right)$$
$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 806: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 213 leaves, 7 steps):

$$-\frac{3\,i\,a^{5/2}\,A\,c^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}\right]}{4\,f}+\frac{3\,a^2\,A\,c^2\,\text{Tan}[e+f\,x]\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{8\,f}+\frac{a\,A\,c\,\text{Tan}[e+f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{4\,f}+\frac{B\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{5\,f}$$

Result (type 3, 459 leaves):

$$-\frac{3\,i\,A\,c^3\,e^{-i\,(3\,e+f\,x)}\,\sqrt{e^{i\,f\,x}}\,\sqrt{\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}}\,\text{ArcTan}\left[e^{i\,(e+f\,x)}\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])}{4\,\sqrt{\frac{c}{1+e^{2\,i\,(e+f\,x)}}}\,f\,\text{Sec}[e+f\,x]^{7/2}\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^{5/2}\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}+$$

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}\,\text{Cos}[e+f\,x]^3\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}$$

$$\left(\text{Sec}[e+f\,x]^4\,\left(\frac{1}{5}\,B\,c^2\,\text{Cos}[2\,e]-\frac{1}{5}\,i\,B\,c^2\,\text{Sin}[2\,e]\right)+A\,c^2\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^3\,\left(\frac{1}{4}\,\text{Cos}[2\,e]-\frac{1}{4}\,i\,\text{Sin}[2\,e]\right)\,\text{Sin}[f\,x]+\right.$$

$$A\,c^2\,\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\left(\frac{3}{8}\,\text{Cos}[2\,e]-\frac{3}{8}\,i\,\text{Sin}[2\,e]\right)\,\text{Sin}[f\,x]+\text{Sec}[e+f\,x]^2\,\left(\frac{1}{4}\,A\,c^2\,\text{Cos}[2\,e]-\frac{1}{4}\,i\,A\,c^2\,\text{Sin}[2\,e]\right)\,\text{Tan}[e]+$$

$$\left.\left(\frac{3}{8}\,A\,c^2\,\text{Cos}[2\,e]-\frac{3}{8}\,i\,A\,c^2\,\text{Sin}[2\,e]\right)\,\text{Tan}[e]\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])$$

Problem 807: Result more than twice size of optimal antiderivative.

$$\int (a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}\,dx$$

Optimal (type 3, 222 leaves, 7 steps) :

$$-\frac{a^{5/2}\,(4\,i\,A+B)\,c^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}\right]}{4\,f}+\frac{a^2\,(4\,A-i\,B)\,c\,\text{Tan}[e+f\,x]\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{8\,f}+$$

$$\frac{a\,(4\,i\,A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{12\,f}+\frac{B\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{4\,f}$$

Result (type 3, 460 leaves) :

$$-\left(i\,(4A-iB)\,c^2\,e^{-i\,(3e+fx)}\,\sqrt{e^{i\,f\,x}}\,\sqrt{\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}}\,\text{ArcTan}\left[e^{i\,(e+f\,x)}\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])\right)\Big/$$

$$\left(4\,\sqrt{\frac{c}{1+e^{2\,i\,(e+f\,x)}}}\,f\,\text{Sec}[e+f\,x]^{7/2}\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^{5/2}\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])\right)+$$

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}\,\text{Cos}[e+f\,x]^3\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}$$

$$\left(\text{Sec}[e]\,\text{Sec}[e+f\,x]^2\,(4\,i\,A\,\text{Cos}[e]+4\,B\,\text{Cos}[e]+3\,i\,B\,\text{Sin}[e])\,\left(\frac{1}{12}\,c\,\text{Cos}[2\,e]-\frac{1}{12}\,i\,c\,\text{Sin}[2\,e]\right)+\right.$$

$$i\,B\,c\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^3\,\left(\frac{1}{4}\,\text{Cos}[2\,e]-\frac{1}{4}\,i\,\text{Sin}[2\,e]\right)\,\text{Sin}[f\,x]+\text{Sec}[e]\,\text{Sec}[e+f\,x]\,\left(\frac{1}{8}\,\text{Cos}[2\,e]-\frac{1}{8}\,i\,\text{Sin}[2\,e]\right)$$

$$\left.(4\,A\,c\,\text{Sin}[f\,x]-i\,B\,c\,\text{Sin}[f\,x])+(4A-iB)\,\left(\frac{1}{8}\,c\,\text{Cos}[2\,e]-\frac{1}{8}\,i\,c\,\text{Sin}[2\,e]\right)\,\text{Tan}[e]\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 813: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])}{(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 3, 155 leaves, 4 steps):

$$-\frac{(i\,A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}}{9\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}-\frac{(2\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}}{63\,c\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}-\frac{(2\,i\,A-7\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}}{315\,c^2\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}$$

Result (type 3, 417 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^3\,\left((-i\,A+B)\,\text{Cos}[4\,f\,x]\,\left(\frac{\text{Cos}[2\,e]}{40\,c^5}+\frac{i\,\text{Sin}[2\,e]}{40\,c^5}\right)+(-17\,i\,A+7\,B)\,\text{Cos}[6\,f\,x]\,\left(\frac{\text{Cos}[4\,e]}{280\,c^5}+\frac{i\,\text{Sin}[4\,e]}{280\,c^5}\right)+\right.$$

$$(25\,A-7\,i\,B)\,\text{Cos}[8\,f\,x]\,\left(-\frac{i\,\text{Cos}[6\,e]}{504\,c^5}+\frac{\text{Sin}[6\,e]}{504\,c^5}\right)+(A-i\,B)\,\text{Cos}[10\,f\,x]\,\left(-\frac{i\,\text{Cos}[8\,e]}{72\,c^5}+\frac{\text{Sin}[8\,e]}{72\,c^5}\right)+$$

$$(A+i\,B)\,\left(\frac{\text{Cos}[2\,e]}{40\,c^5}+\frac{i\,\text{Sin}[2\,e]}{40\,c^5}\right)\,\text{Sin}[4\,f\,x]+(17\,A+7\,i\,B)\,\left(\frac{\text{Cos}[4\,e]}{280\,c^5}+\frac{i\,\text{Sin}[4\,e]}{280\,c^5}\right)\,\text{Sin}[6\,f\,x]+$$

$$\left.(25\,A-7\,i\,B)\,\left(\frac{\text{Cos}[6\,e]}{504\,c^5}+\frac{i\,\text{Sin}[6\,e]}{504\,c^5}\right)\,\text{Sin}[8\,f\,x]+(A-i\,B)\,\left(\frac{\text{Cos}[8\,e]}{72\,c^5}+\frac{i\,\text{Sin}[8\,e]}{72\,c^5}\right)\,\text{Sin}[10\,f\,x]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])$$

Problem 814: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x])}{(c-i\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}\,dx$$

Optimal (type 3, 208 leaves, 5 steps):

$$-\frac{(i\,A+B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{11\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}-\frac{(3\,i\,A-8\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{99\,c\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{9/2}}-\frac{2\,(3\,i\,A-8\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{693\,c^2\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{7/2}}-\frac{2\,(3\,i\,A-8\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{3465\,c^3\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

Result (type 3, 495 leaves):

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^2\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}\mathrm{Cos}[e+f\,x]^3\left((-i\,A+B)\,\mathrm{Cos}[4\,f\,x]\left(\frac{\mathrm{Cos}[2\,e]}{80\,c^6}+\frac{i\,\mathrm{Sin}[2\,e]}{80\,c^6}\right)+(-11\,i\,A+6\,B)\,\mathrm{Cos}[6\,f\,x]\left(\frac{\mathrm{Cos}[4\,e]}{280\,c^6}+\frac{i\,\mathrm{Sin}[4\,e]}{280\,c^6}\right)+\right.$$
$$(-24\,i\,A+B)\,\mathrm{Cos}[8\,f\,x]\left(\frac{\mathrm{Cos}[6\,e]}{504\,c^6}+\frac{i\,\mathrm{Sin}[6\,e]}{504\,c^6}\right)+(21\,A-10\,i\,B)\,\mathrm{Cos}[10\,f\,x]\left(-\frac{i\,\mathrm{Cos}[8\,e]}{792\,c^6}+\frac{\mathrm{Sin}[8\,e]}{792\,c^6}\right)+$$
$$(A-i\,B)\,\mathrm{Cos}[12\,f\,x]\left(-\frac{i\,\mathrm{Cos}[10\,e]}{176\,c^6}+\frac{\mathrm{Sin}[10\,e]}{176\,c^6}\right)+(A+i\,B)\left(\frac{\mathrm{Cos}[2\,e]}{80\,c^6}+\frac{i\,\mathrm{Sin}[2\,e]}{80\,c^6}\right)\mathrm{Sin}[4\,f\,x]+$$
$$(11\,A+6\,i\,B)\left(\frac{\mathrm{Cos}[4\,e]}{280\,c^6}+\frac{i\,\mathrm{Sin}[4\,e]}{280\,c^6}\right)\mathrm{Sin}[6\,f\,x]+(24\,A+i\,B)\left(\frac{\mathrm{Cos}[6\,e]}{504\,c^6}+\frac{i\,\mathrm{Sin}[6\,e]}{504\,c^6}\right)\mathrm{Sin}[8\,f\,x]+$$
$$\left.(21\,A-10\,i\,B)\left(\frac{\mathrm{Cos}[8\,e]}{792\,c^6}+\frac{i\,\mathrm{Sin}[8\,e]}{792\,c^6}\right)\mathrm{Sin}[10\,f\,x]+(A-i\,B)\left(\frac{\mathrm{Cos}[10\,e]}{176\,c^6}+\frac{i\,\mathrm{Sin}[10\,e]}{176\,c^6}\right)\mathrm{Sin}[12\,f\,x]\right)$$
$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]-i\,c\,\mathrm{Sin}[e+f\,x])}\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x])$$

Problem 815: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x])}{(c-i\,c\,\mathrm{Tan}[e+f\,x])^{13/2}}\,dx$$

Optimal (type 3, 261 leaves, 6 steps):

$$-\frac{(i\,A+B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{13\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{13/2}}-\frac{(4\,i\,A-9\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{143\,c\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}-\frac{(4\,i\,A-9\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{429\,c^2\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{9/2}}-\frac{2\,(4\,i\,A-9\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{3003\,c^3\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{7/2}}-\frac{2\,(4\,i\,A-9\,B)\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{5/2}}{15\,015\,c^4\,f\,(c-i\,c\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

Result (type 3, 577 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^2\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^3\left((-i\,A+B)\,\text{Cos}[4\,f\,x]\left(\frac{\text{Cos}[2\,e]}{160\,c^7}+\frac{i\,\text{Sin}[2\,e]}{160\,c^7}\right)+(-27\,i\,A+17\,B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[4\,e]}{1120\,c^7}+\frac{i\,\text{Sin}[4\,e]}{1120\,c^7}\right)+\right.$$
$$(-13\,i\,A+3\,B)\,\text{Cos}[8\,f\,x]\left(\frac{\text{Cos}[6\,e]}{336\,c^7}+\frac{i\,\text{Sin}[6\,e]}{336\,c^7}\right)+(17\,A-3\,i\,B)\,\text{Cos}[10\,f\,x]\left(-\frac{i\,\text{Cos}[8\,e]}{528\,c^7}+\frac{\text{Sin}[8\,e]}{528\,c^7}\right)+$$
$$(63\,A-37\,i\,B)\,\text{Cos}[12\,f\,x]\left(-\frac{i\,\text{Cos}[10\,e]}{4576\,c^7}+\frac{\text{Sin}[10\,e]}{4576\,c^7}\right)+(A-i\,B)\,\text{Cos}[14\,f\,x]\left(-\frac{i\,\text{Cos}[12\,e]}{416\,c^7}+\frac{\text{Sin}[12\,e]}{416\,c^7}\right)+$$
$$(A+i\,B)\left(\frac{\text{Cos}[2\,e]}{160\,c^7}+\frac{i\,\text{Sin}[2\,e]}{160\,c^7}\right)\text{Sin}[4\,f\,x]+(27\,A+17\,i\,B)\left(\frac{\text{Cos}[4\,e]}{1120\,c^7}+\frac{i\,\text{Sin}[4\,e]}{1120\,c^7}\right)\text{Sin}[6\,f\,x]+$$
$$(13\,A+3\,i\,B)\left(\frac{\text{Cos}[6\,e]}{336\,c^7}+\frac{i\,\text{Sin}[6\,e]}{336\,c^7}\right)\text{Sin}[8\,f\,x]+(17\,A-3\,i\,B)\left(\frac{\text{Cos}[8\,e]}{528\,c^7}+\frac{i\,\text{Sin}[8\,e]}{528\,c^7}\right)\text{Sin}[10\,f\,x]+$$
$$\left.(63\,A-37\,i\,B)\left(\frac{\text{Cos}[10\,e]}{4576\,c^7}+\frac{i\,\text{Sin}[10\,e]}{4576\,c^7}\right)\text{Sin}[12\,f\,x]+(A-i\,B)\left(\frac{\text{Cos}[12\,e]}{416\,c^7}+\frac{i\,\text{Sin}[12\,e]}{416\,c^7}\right)\text{Sin}[14\,f\,x]\right)$$
$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 817: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}\,dx$$

Optimal (type 3, 267 leaves, 8 steps):

$$-\frac{5\,i\,a^{7/2}\,A\,c^{7/2}\,\text{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}\right]}{8\,f}+\frac{5\,a^3\,A\,c^3\,\text{Tan}[e+f\,x]\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{16\,f}+$$
$$\frac{5\,a^2\,A\,c^2\,\text{Tan}[e+f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{24\,f}+$$
$$\frac{a\,A\,c\,\text{Tan}[e+f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{6\,f}+\frac{B\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}{7\,f}$$

Result (type 3, 535 leaves):

$$-\frac{5\,i\,A\,c^4\,e^{-i\,(4\,e+f\,x)}\,\sqrt{e^{i\,f\,x}}\,\sqrt{\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}}\,\text{ArcTan}\left[e^{i\,(e+f\,x)}\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{8\,\sqrt{\frac{c}{1+e^{2\,i\,(e+f\,x)}}}\,f\,\text{Sec}[e+f\,x]^{9/2}\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^{7/2}\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}+$$

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}\,\text{Cos}[e+f\,x]^4\,\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}$$
$$\left(\text{Sec}[e+f\,x]^6\left(\frac{1}{7}\,B\,c^3\,\text{Cos}[3\,e]-\frac{1}{7}\,i\,B\,c^3\,\text{Sin}[3\,e]\right)+A\,c^3\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^5\left(\frac{1}{6}\,\text{Cos}[3\,e]-\frac{1}{6}\,i\,\text{Sin}[3\,e]\right)\text{Sin}[f\,x]+\right.$$
$$A\,c^3\,\text{Sec}[e]\,\text{Sec}[e+f\,x]^3\left(\frac{5}{24}\,\text{Cos}[3\,e]-\frac{5}{24}\,i\,\text{Sin}[3\,e]\right)\text{Sin}[f\,x]+A\,c^3\,\text{Sec}[e]\,\text{Sec}[e+f\,x]\left(\frac{5}{16}\,\text{Cos}[3\,e]-\frac{5}{16}\,i\,\text{Sin}[3\,e]\right)\text{Sin}[f\,x]+$$
$$\text{Sec}[e+f\,x]^4\left(\frac{1}{6}\,A\,c^3\,\text{Cos}[3\,e]-\frac{1}{6}\,i\,A\,c^3\,\text{Sin}[3\,e]\right)\text{Tan}[e]+\text{Sec}[e+f\,x]^2\left(\frac{5}{24}\,A\,c^3\,\text{Cos}[3\,e]-\frac{5}{24}\,i\,A\,c^3\,\text{Sin}[3\,e]\right)\text{Tan}[e]+$$
$$\left.\left(\frac{5}{16}\,A\,c^3\,\text{Cos}[3\,e]-\frac{5}{16}\,i\,A\,c^3\,\text{Sin}[3\,e]\right)\text{Tan}[e]\right)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 818: Result more than twice size of optimal antiderivative.**

$$\int(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}\,dx$$

Optimal (type 3, 284 leaves, 8 steps) :

$$-\frac{a^{7/2}\,(6\,i\,A+B)\,c^{5/2}\,\text{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}}{\sqrt{a}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}\right]}{8\,f}+\frac{a^3\,(6\,A-i\,B)\,c^2\,\text{Tan}[e+f\,x]\,\sqrt{a+i\,a\,\text{Tan}[e+f\,x]}\,\sqrt{c-i\,c\,\text{Tan}[e+f\,x]}}{16\,f}+$$
$$\frac{a^2\,(6\,A-i\,B)\,c\,\text{Tan}[e+f\,x]\,(a+i\,a\,\text{Tan}[e+f\,x])^{3/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{3/2}}{24\,f}+$$
$$\frac{a\,(6\,i\,A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{5/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{30\,f}+\frac{B\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(c-i\,c\,\text{Tan}[e+f\,x])^{5/2}}{6\,f}$$

Result (type 3, 572 leaves) :

$$-\left(i\,(6A-iB)\,c^3\,e^{-i\,(4e+fx)}\sqrt{e^{i\,fx}}\sqrt{\frac{e^{i\,(e+fx)}}{1+e^{2\,i\,(e+fx)}}}\,\text{ArcTan}\left[e^{i\,(e+fx)}\right]\,(a+i\,a\,\text{Tan}[e+fx])^{7/2}\,(A+B\,\text{Tan}[e+fx])\right)\Big/$$
$$\left(8\sqrt{\frac{c}{1+e^{2\,i\,(e+fx)}}}\,f\,\text{Sec}[e+fx]^{9/2}\,(\text{Cos}[fx]+i\,\text{Sin}[fx])^{7/2}\,(A\,\text{Cos}[e+fx]+B\,\text{Sin}[e+fx])\right)+$$
$$\frac{1}{f\,(\text{Cos}[fx]+i\,\text{Sin}[fx])^3\,(A\,\text{Cos}[e+fx]+B\,\text{Sin}[e+fx])}\text{Cos}[e+fx]^4\sqrt{\text{Sec}[e+fx]\,(c\,\text{Cos}[e+fx]-i\,c\,\text{Sin}[e+fx])}$$
$$\left(\text{Sec}[e]\,\text{Sec}[e+fx]^4\,(6\,i\,A\,\text{Cos}[e]+6\,B\,\text{Cos}[e]+5\,i\,B\,\text{Sin}[e])\left(\frac{1}{30}c^2\,\text{Cos}[3e]-\frac{1}{30}i\,c^2\,\text{Sin}[3e]\right)+\right.$$
$$i\,B\,c^2\,\text{Sec}[e]\,\text{Sec}[e+fx]^5\left(\frac{1}{6}\text{Cos}[3e]-\frac{1}{6}i\,\text{Sin}[3e]\right)\text{Sin}[fx]+$$
$$\text{Sec}[e]\,\text{Sec}[e+fx]^3\left(\frac{1}{24}\text{Cos}[3e]-\frac{1}{24}i\,\text{Sin}[3e]\right)\left(6\,A\,c^2\,\text{Sin}[fx]-i\,B\,c^2\,\text{Sin}[fx]\right)+\text{Sec}[e]\,\text{Sec}[e+fx]$$
$$\left(\frac{1}{16}\text{Cos}[3e]-\frac{1}{16}i\,\text{Sin}[3e]\right)\left(6\,A\,c^2\,\text{Sin}[fx]-i\,B\,c^2\,\text{Sin}[fx]\right)+(6A-iB)\,\text{Sec}[e+fx]^2\left(\frac{1}{24}c^2\,\text{Cos}[3e]-\frac{1}{24}i\,c^2\,\text{Sin}[3e]\right)\text{Tan}[e]+$$
$$\left.(6A-iB)\left(\frac{1}{16}c^2\,\text{Cos}[3e]-\frac{1}{16}i\,c^2\,\text{Sin}[3e]\right)\text{Tan}[e]\right)\,(a+i\,a\,\text{Tan}[e+fx])^{7/2}\,(A+B\,\text{Tan}[e+fx])$$

- **Problem 824: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+fx])^{7/2}\,(A+B\,\text{Tan}[e+fx])}{(c-i\,c\,\text{Tan}[e+fx])^{7/2}}\,dx$$

Optimal (type 3, 251 leaves, 8 steps):

$$-\frac{2\,a^{7/2}\,B\,\text{ArcTan}\left[\frac{\sqrt{c}\,\sqrt{a+i\,a\,\text{Tan}[e+fx]}}{\sqrt{a}\,\sqrt{c-i\,c\,\text{Tan}[e+fx]}}\right]}{c^{7/2}\,f}-\frac{(i\,A+B)\,(a+i\,a\,\text{Tan}[e+fx])^{7/2}}{7\,f\,(c-i\,c\,\text{Tan}[e+fx])^{7/2}}+$$
$$\frac{2\,a\,B\,(a+i\,a\,\text{Tan}[e+fx])^{5/2}}{5\,c\,f\,(c-i\,c\,\text{Tan}[e+fx])^{5/2}}-\frac{2\,a^2\,B\,(a+i\,a\,\text{Tan}[e+fx])^{3/2}}{3\,c^2\,f\,(c-i\,c\,\text{Tan}[e+fx])^{3/2}}+\frac{2\,a^3\,B\,\sqrt{a+i\,a\,\text{Tan}[e+fx]}}{c^3\,f\,\sqrt{c-i\,c\,\text{Tan}[e+fx]}}$$

Result (type 3, 570 leaves):

$$-\frac{2\,B\,e^{-i\,(4\,e+f\,x)}\,\sqrt{e^{i\,f\,x}}\,\sqrt{\frac{e^{i\,(e+f\,x)}}{1+e^{2\,i\,(e+f\,x)}}}\,\text{ArcTan}\left[e^{i\,(e+f\,x)}\right]\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{c^3\,\sqrt{\frac{c}{1+e^{2\,i\,(e+f\,x)}}}\,f\,\text{Sec}[e+f\,x]^{9/2}\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^{7/2}\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}+$$

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$
$$\text{Cos}[e+f\,x]^4\left(\frac{B\,\text{Cos}[3\,e]}{c^4}+\text{Cos}[4\,f\,x]\left(-\frac{2\,B\,\text{Cos}[e]}{15\,c^4}-\frac{2\,i\,B\,\text{Sin}[e]}{15\,c^4}\right)+\text{Cos}[2\,f\,x]\left(\frac{2\,B\,\text{Cos}[e]}{3\,c^4}-\frac{2\,i\,B\,\text{Sin}[e]}{3\,c^4}\right)-\frac{i\,B\,\text{Sin}[3\,e]}{c^4}+\right.$$
$$(-5\,i\,A+9\,B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[3\,e]}{70\,c^4}+\frac{i\,\text{Sin}[3\,e]}{70\,c^4}\right)+(A-i\,B)\,\text{Cos}[8\,f\,x]\left(-\frac{i\,\text{Cos}[5\,e]}{14\,c^4}+\frac{\text{Sin}[5\,e]}{14\,c^4}\right)+\left(\frac{2\,i\,B\,\text{Cos}[e]}{3\,c^4}+\frac{2\,B\,\text{Sin}[e]}{3\,c^4}\right)\text{Sin}[2\,f\,x]+$$
$$\left.\left(-\frac{2\,i\,B\,\text{Cos}[e]}{15\,c^4}+\frac{2\,B\,\text{Sin}[e]}{15\,c^4}\right)\text{Sin}[4\,f\,x]+(5\,A+9\,i\,B)\left(\frac{\text{Cos}[3\,e]}{70\,c^4}+\frac{i\,\text{Sin}[3\,e]}{70\,c^4}\right)\text{Sin}[6\,f\,x]+(A-i\,B)\left(\frac{\text{Cos}[5\,e]}{14\,c^4}+\frac{i\,\text{Sin}[5\,e]}{14\,c^4}\right)\text{Sin}[8\,f\,x]\right)$$
$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 825: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}\,dx$$

Optimal (type 3, 102 leaves, 3 steps):

$$-\frac{(i\,A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{9\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}-\frac{(i\,A-8\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{63\,c\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}$$

Result (type 3, 335 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$
$$\text{Cos}[e+f\,x]^4\left((-i\,A+B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[3\,e]}{28\,c^5}+\frac{i\,\text{Sin}[3\,e]}{28\,c^5}\right)+(-8\,i\,A+B)\,\text{Cos}[8\,f\,x]\left(\frac{\text{Cos}[5\,e]}{126\,c^5}+\frac{i\,\text{Sin}[5\,e]}{126\,c^5}\right)+\right.$$
$$(A-i\,B)\,\text{Cos}[10\,f\,x]\left(-\frac{i\,\text{Cos}[7\,e]}{36\,c^5}+\frac{\text{Sin}[7\,e]}{36\,c^5}\right)+(A+i\,B)\left(\frac{\text{Cos}[3\,e]}{28\,c^5}+\frac{i\,\text{Sin}[3\,e]}{28\,c^5}\right)\text{Sin}[6\,f\,x]+$$
$$\left.(8\,A+i\,B)\left(\frac{\text{Cos}[5\,e]}{126\,c^5}+\frac{i\,\text{Sin}[5\,e]}{126\,c^5}\right)\text{Sin}[8\,f\,x]+(A-i\,B)\left(\frac{\text{Cos}[7\,e]}{36\,c^5}+\frac{i\,\text{Sin}[7\,e]}{36\,c^5}\right)\text{Sin}[10\,f\,x]\right)$$
$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 826: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{(c-i\,c\,\text{Tan}[e+f\,x])^{11/2}}\,dx$$

Optimal (type 3, 155 leaves, 4 steps):

$$-\frac{(\mathrm{i}\,A+B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{11\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}-\frac{(2\,\mathrm{i}\,A-9\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{99\,c\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{9/2}}-\frac{(2\,\mathrm{i}\,A-9\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{693\,c^2\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{7/2}}$$

Result (type 3, 417 leaves) :

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}\mathrm{Cos}[e+f\,x]^4\left((-\mathrm{i}\,A+B)\,\mathrm{Cos}[6\,f\,x]\left(\frac{\mathrm{Cos}[3\,e]}{56\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[3\,e]}{56\,c^6}\right)+(-23\,\mathrm{i}\,A+9\,B)\,\mathrm{Cos}[8\,f\,x]\left(\frac{\mathrm{Cos}[5\,e]}{504\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[5\,e]}{504\,c^6}\right)+\right.$$
$$(31\,A-9\,\mathrm{i}\,B)\,\mathrm{Cos}[10\,f\,x]\left(-\frac{\mathrm{i}\,\mathrm{Cos}[7\,e]}{792\,c^6}+\frac{\mathrm{Sin}[7\,e]}{792\,c^6}\right)+(A-\mathrm{i}\,B)\,\mathrm{Cos}[12\,f\,x]\left(-\frac{\mathrm{i}\,\mathrm{Cos}[9\,e]}{88\,c^6}+\frac{\mathrm{Sin}[9\,e]}{88\,c^6}\right)+$$
$$(A+\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[3\,e]}{56\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[3\,e]}{56\,c^6}\right)\mathrm{Sin}[6\,f\,x]+(23\,A+9\,\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[5\,e]}{504\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[5\,e]}{504\,c^6}\right)\mathrm{Sin}[8\,f\,x]+$$
$$\left.(31\,A-9\,\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[7\,e]}{792\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[7\,e]}{792\,c^6}\right)\mathrm{Sin}[10\,f\,x]+(A-\mathrm{i}\,B)\left(\frac{\mathrm{Cos}[9\,e]}{88\,c^6}+\frac{\mathrm{i}\,\mathrm{Sin}[9\,e]}{88\,c^6}\right)\mathrm{Sin}[12\,f\,x]\right)$$
$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]-\mathrm{i}\,c\,\mathrm{Sin}[e+f\,x])}\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}\,(A+B\,\mathrm{Tan}[e+f\,x])$$

- **Problem 827: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}\,(A+B\,\mathrm{Tan}[e+f\,x])}{(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{13/2}}\,dx$$

Optimal (type 3, 208 leaves, 5 steps) :

$$-\frac{(\mathrm{i}\,A+B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{13\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{13/2}}-\frac{(3\,\mathrm{i}\,A-10\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{143\,c\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{11/2}}-$$
$$\frac{2\,(3\,\mathrm{i}\,A-10\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{1287\,c^2\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{9/2}}-\frac{2\,(3\,\mathrm{i}\,A-10\,B)\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{7/2}}{9009\,c^3\,f\,(c-\mathrm{i}\,c\,\mathrm{Tan}[e+f\,x])^{7/2}}$$

Result (type 3, 495 leaves) :

$$\frac{1}{f\,(\text{Cos}[f\,x]+\text{i}\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^4\left((-\text{i}\,A+B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[3\,e]}{112\,c^7}+\frac{\text{i}\,\text{Sin}[3\,e]}{112\,c^7}\right)+(-15\,\text{i}\,A+8\,B)\,\text{Cos}[8\,f\,x]\left(\frac{\text{Cos}[5\,e]}{504\,c^7}+\frac{\text{i}\,\text{Sin}[5\,e]}{504\,c^7}\right)+\right.$$

$$(-30\,\text{i}\,A+B)\,\text{Cos}[10\,f\,x]\left(\frac{\text{Cos}[7\,e]}{792\,c^7}+\frac{\text{i}\,\text{Sin}[7\,e]}{792\,c^7}\right)+(25\,A-12\,\text{i}\,B)\,\text{Cos}[12\,f\,x]\left(-\frac{\text{i}\,\text{Cos}[9\,e]}{1144\,c^7}+\frac{\text{Sin}[9\,e]}{1144\,c^7}\right)+$$

$$(A-\text{i}\,B)\,\text{Cos}[14\,f\,x]\left(-\frac{\text{i}\,\text{Cos}[11\,e]}{208\,c^7}+\frac{\text{Sin}[11\,e]}{208\,c^7}\right)+(A+\text{i}\,B)\left(\frac{\text{Cos}[3\,e]}{112\,c^7}+\frac{\text{i}\,\text{Sin}[3\,e]}{112\,c^7}\right)\text{Sin}[6\,f\,x]+$$

$$(15\,A+8\,\text{i}\,B)\left(\frac{\text{Cos}[5\,e]}{504\,c^7}+\frac{\text{i}\,\text{Sin}[5\,e]}{504\,c^7}\right)\text{Sin}[8\,f\,x]+(30\,A+\text{i}\,B)\left(\frac{\text{Cos}[7\,e]}{792\,c^7}+\frac{\text{i}\,\text{Sin}[7\,e]}{792\,c^7}\right)\text{Sin}[10\,f\,x]+$$

$$\left.(25\,A-12\,\text{i}\,B)\left(\frac{\text{Cos}[9\,e]}{1144\,c^7}+\frac{\text{i}\,\text{Sin}[9\,e]}{1144\,c^7}\right)\text{Sin}[12\,f\,x]+(A-\text{i}\,B)\left(\frac{\text{Cos}[11\,e]}{208\,c^7}+\frac{\text{i}\,\text{Sin}[11\,e]}{208\,c^7}\right)\text{Sin}[14\,f\,x]\right)$$

$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-\text{i}\,c\,\text{Sin}[e+f\,x])}\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 828: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{15/2}}\,dx$$

Optimal (type 3, 261 leaves, 6 steps):

$$-\frac{(\text{i}\,A+B)\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}}{15\,f\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{15/2}}-\frac{(4\,\text{i}\,A-11\,B)\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}}{195\,c\,f\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{13/2}}-$$

$$\frac{(4\,\text{i}\,A-11\,B)\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}}{715\,c^2\,f\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{11/2}}-\frac{2\,(4\,\text{i}\,A-11\,B)\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}}{6435\,c^3\,f\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{9/2}}-\frac{2\,(4\,\text{i}\,A-11\,B)\,(a+\text{i}\,a\,\text{Tan}[e+f\,x])^{7/2}}{45\,045\,c^4\,f\,(c-\text{i}\,c\,\text{Tan}[e+f\,x])^{7/2}}$$

Result (type 3, 577 leaves):

$$\frac{1}{f\,(\text{Cos}[f\,x]+i\,\text{Sin}[f\,x])^3\,(A\,\text{Cos}[e+f\,x]+B\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^4\left((-i\,A+B)\,\text{Cos}[6\,f\,x]\left(\frac{\text{Cos}[3\,e]}{224\,c^8}+\frac{i\,\text{Sin}[3\,e]}{224\,c^8}\right)+(-37\,i\,A+23\,B)\,\text{Cos}[8\,f\,x]\left(\frac{\text{Cos}[5\,e]}{2016\,c^8}+\frac{i\,\text{Sin}[5\,e]}{2016\,c^8}\right)+\right.$$
$$(-49\,i\,A+11\,B)\,\text{Cos}[10\,f\,x]\left(\frac{\text{Cos}[7\,e]}{1584\,c^8}+\frac{i\,\text{Sin}[7\,e]}{1584\,c^8}\right)+(61\,A-11\,i\,B)\,\text{Cos}[12\,f\,x]\left(-\frac{i\,\text{Cos}[9\,e]}{2288\,c^8}+\frac{\text{Sin}[9\,e]}{2288\,c^8}\right)+$$
$$(73\,A-43\,i\,B)\,\text{Cos}[14\,f\,x]\left(-\frac{i\,\text{Cos}[11\,e]}{6240\,c^8}+\frac{\text{Sin}[11\,e]}{6240\,c^8}\right)+(A-i\,B)\,\text{Cos}[16\,f\,x]\left(-\frac{i\,\text{Cos}[13\,e]}{480\,c^8}+\frac{\text{Sin}[13\,e]}{480\,c^8}\right)+$$
$$(A+i\,B)\left(\frac{\text{Cos}[3\,e]}{224\,c^8}+\frac{i\,\text{Sin}[3\,e]}{224\,c^8}\right)\text{Sin}[6\,f\,x]+(37\,A+23\,i\,B)\left(\frac{\text{Cos}[5\,e]}{2016\,c^8}+\frac{i\,\text{Sin}[5\,e]}{2016\,c^8}\right)\text{Sin}[8\,f\,x]+$$
$$(49\,A+11\,i\,B)\left(\frac{\text{Cos}[7\,e]}{1584\,c^8}+\frac{i\,\text{Sin}[7\,e]}{1584\,c^8}\right)\text{Sin}[10\,f\,x]+(61\,A-11\,i\,B)\left(\frac{\text{Cos}[9\,e]}{2288\,c^8}+\frac{i\,\text{Sin}[9\,e]}{2288\,c^8}\right)\text{Sin}[12\,f\,x]+$$
$$\left.(73\,A-43\,i\,B)\left(\frac{\text{Cos}[11\,e]}{6240\,c^8}+\frac{i\,\text{Sin}[11\,e]}{6240\,c^8}\right)\text{Sin}[14\,f\,x]+(A-i\,B)\left(\frac{\text{Cos}[13\,e]}{480\,c^8}+\frac{i\,\text{Sin}[13\,e]}{480\,c^8}\right)\text{Sin}[16\,f\,x]\right)$$
$$\sqrt{\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]-i\,c\,\text{Sin}[e+f\,x])}\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])$$

- **Problem 829: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}\,(A+B\,\text{Tan}[e+f\,x])}{(c-i\,c\,\text{Tan}[e+f\,x])^{17/2}}\,dx$$

Optimal (type 3, 314 leaves, 7 steps):

$$-\frac{(i\,A+B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{17\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{17/2}}-\frac{(5\,i\,A-12\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{255\,c\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{15/2}}-\frac{4\,(5\,i\,A-12\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{3315\,c^2\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{13/2}}-$$
$$\frac{4\,(5\,i\,A-12\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{12\,155\,c^3\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{11/2}}-\frac{8\,(5\,i\,A-12\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{109\,395\,c^4\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{9/2}}-\frac{8\,(5\,i\,A-12\,B)\,(a+i\,a\,\text{Tan}[e+f\,x])^{7/2}}{765\,765\,c^5\,f\,(c-i\,c\,\text{Tan}[e+f\,x])^{7/2}}$$

Result (type 3, 655 leaves):

$$\frac{1}{f\,(\mathrm{Cos}[f\,x]+i\,\mathrm{Sin}[f\,x])^3\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])}$$

$$\mathrm{Cos}[e+f\,x]^4\left((-i\,A+B)\,\mathrm{Cos}[6\,f\,x]\left(\frac{\mathrm{Cos}[3\,e]}{448\,c^9}+\frac{i\,\mathrm{Sin}[3\,e]}{448\,c^9}\right)+(-22\,i\,A+15\,B)\,\mathrm{Cos}[8\,f\,x]\left(\frac{\mathrm{Cos}[5\,e]}{2016\,c^9}+\frac{i\,\mathrm{Sin}[5\,e]}{2016\,c^9}\right)+\right.$$
$$(-145\,i\,A+51\,B)\,\mathrm{Cos}[10\,f\,x]\left(\frac{\mathrm{Cos}[7\,e]}{6336\,c^9}+\frac{i\,\mathrm{Sin}[7\,e]}{6336\,c^9}\right)+(-60\,i\,A+B)\,\mathrm{Cos}[12\,f\,x]\left(\frac{\mathrm{Cos}[9\,e]}{2288\,c^9}+\frac{i\,\mathrm{Sin}[9\,e]}{2288\,c^9}\right)+$$
$$(215\,A-69\,i\,B)\,\mathrm{Cos}[14\,f\,x]\left(-\frac{i\,\mathrm{Cos}[11\,e]}{12\,480\,c^9}+\frac{\mathrm{Sin}[11\,e]}{12\,480\,c^9}\right)+(50\,A-33\,i\,B)\,\mathrm{Cos}[16\,f\,x]\left(-\frac{i\,\mathrm{Cos}[13\,e]}{8160\,c^9}+\frac{\mathrm{Sin}[13\,e]}{8160\,c^9}\right)+$$
$$(A-i\,B)\,\mathrm{Cos}[18\,f\,x]\left(-\frac{i\,\mathrm{Cos}[15\,e]}{1088\,c^9}+\frac{\mathrm{Sin}[15\,e]}{1088\,c^9}\right)+(A+i\,B)\left(\frac{\mathrm{Cos}[3\,e]}{448\,c^9}+\frac{i\,\mathrm{Sin}[3\,e]}{448\,c^9}\right)\mathrm{Sin}[6\,f\,x]+$$
$$(22\,A+15\,i\,B)\left(\frac{\mathrm{Cos}[5\,e]}{2016\,c^9}+\frac{i\,\mathrm{Sin}[5\,e]}{2016\,c^9}\right)\mathrm{Sin}[8\,f\,x]+(145\,A+51\,i\,B)\left(\frac{\mathrm{Cos}[7\,e]}{6336\,c^9}+\frac{i\,\mathrm{Sin}[7\,e]}{6336\,c^9}\right)\mathrm{Sin}[10\,f\,x]+$$
$$(60\,A+i\,B)\left(\frac{\mathrm{Cos}[9\,e]}{2288\,c^9}+\frac{i\,\mathrm{Sin}[9\,e]}{2288\,c^9}\right)\mathrm{Sin}[12\,f\,x]+(215\,A-69\,i\,B)\left(\frac{\mathrm{Cos}[11\,e]}{12\,480\,c^9}+\frac{i\,\mathrm{Sin}[11\,e]}{12\,480\,c^9}\right)\mathrm{Sin}[14\,f\,x]+$$
$$\left.(50\,A-33\,i\,B)\left(\frac{\mathrm{Cos}[13\,e]}{8160\,c^9}+\frac{i\,\mathrm{Sin}[13\,e]}{8160\,c^9}\right)\mathrm{Sin}[16\,f\,x]+(A-i\,B)\left(\frac{\mathrm{Cos}[15\,e]}{1088\,c^9}+\frac{i\,\mathrm{Sin}[15\,e]}{1088\,c^9}\right)\mathrm{Sin}[18\,f\,x]\right)$$
$$\sqrt{\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]-i\,c\,\mathrm{Sin}[e+f\,x])}\;(a+i\,a\,\mathrm{Tan}[e+f\,x])^{7/2}\,(A+B\,\mathrm{Tan}[e+f\,x])$$

- **Problem 855: Result more than twice size of optimal antiderivative.**

$$\int\frac{(A+B\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])}{(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 147 leaves, 4 steps):

$$-\frac{(i\,A+B)\,(c-i\,d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}{\sqrt{2}\,\sqrt{a}}\right]}{2\,\sqrt{2}\,a^{3/2}\,f}+\frac{(i\,A-B)\,(c+i\,d)}{3\,f\,(a+i\,a\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{B\,(c+3\,i\,d)+A\,(i\,c+d)}{2\,a\,f\,\sqrt{a+i\,a\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 480 leaves):

$$-\left(\mathrm{i}\,(A-\mathrm{i}\,B)\,(c-\mathrm{i}\,d)\,e^{2\,\mathrm{i}\,e}\sqrt{e^{\mathrm{i}\,f\,x}}\,\mathrm{ArcSinh}\left[e^{\mathrm{i}\,(e+f\,x)}\right]\,(\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^{3/2}\,(A+B\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])\right)\bigg/\left(2\sqrt{2}\sqrt{\frac{e^{\mathrm{i}\,(e+f\,x)}}{1+e^{2\,\mathrm{i}\,(e+f\,x)}}}\right.$$

$$\left.\sqrt{1+e^{2\,\mathrm{i}\,(e+f\,x)}}\,f\sqrt{\mathrm{Sec}[e+f\,x]}\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\right)+$$

$$\left((\mathrm{Cos}[f\,x]+\mathrm{i}\,\mathrm{Sin}[f\,x])^2\left(\frac{1}{12}(5\,\mathrm{i}\,A\,c+B\,c+A\,d+7\,\mathrm{i}\,B\,d)\,\mathrm{Cos}[2\,f\,x]+(2\,\mathrm{i}\,A\,c+B\,c+A\,d+4\,\mathrm{i}\,B\,d)\left(\frac{1}{6}\mathrm{Cos}[2\,e]+\frac{1}{6}\mathrm{i}\,\mathrm{Sin}[2\,e]\right)+\right.\right.$$

$$(A+\mathrm{i}\,B)\,(c+\mathrm{i}\,d)\,\mathrm{Cos}[4\,f\,x]\left(\frac{1}{12}\mathrm{i}\,\mathrm{Cos}[2\,e]+\frac{1}{12}\mathrm{Sin}[2\,e]\right)+\frac{1}{12}(5\,A\,c-\mathrm{i}\,B\,c-\mathrm{i}\,A\,d+7\,B\,d)\,\mathrm{Sin}[2\,f\,x]+$$

$$\left.\left.(A+\mathrm{i}\,B)\,(c+\mathrm{i}\,d)\left(\frac{1}{12}\mathrm{Cos}[2\,e]-\frac{1}{12}\mathrm{i}\,\mathrm{Sin}[2\,e]\right)\mathrm{Sin}[4\,f\,x]\right)(A+B\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])\right)\bigg/$$

$$\left(f\,(A\,\mathrm{Cos}[e+f\,x]+B\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\,(a+\mathrm{i}\,a\,\mathrm{Tan}[e+f\,x])^{3/2}\right)$$

Test results for the 171 problems in "4.3.4.2 (a+b tan)^m (c+d tan)^n (A+B tan+C tan^2).m"

- **Problem 9: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^2\left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right)dx$$

Optimal (type 3, 148 leaves, 6 steps) :

$$-\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)x+\frac{\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}-\frac{b\,(b\,B+a\,C)\,\mathrm{Tan}[c+d\,x]}{d}-$$

$$\frac{C\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{2\,d}+\frac{(4\,b\,B-a\,C)\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{12\,b^2\,d}+\frac{C\,\mathrm{Tan}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{4\,b\,d}$$

Result (type 3, 560 leaves) :

$$\frac{\left(2\,a\,b\,B+a^2\,C-2\,b^2\,C\right)\,\mathrm{Cos}[c+d\,x]\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)}{2\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}-$$
$$\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]^3\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)}{d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+$$
$$\frac{\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)}{d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+$$
$$\frac{b^2\,C\,\mathrm{Sec}[c+d\,x]\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)}{4\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+$$
$$\left(\mathrm{Cos}[c+d\,x]^2\,\left(3\,a^2\,B\,\mathrm{Sin}[c+d\,x]-4\,b^2\,B\,\mathrm{Sin}[c+d\,x]-8\,a\,b\,C\,\mathrm{Sin}[c+d\,x]\right)\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)\right)\Big/$$
$$\left(3\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)\right)+$$
$$\frac{\left(b^2\,B\,\mathrm{Sin}[c+d\,x]+2\,a\,b\,C\,\mathrm{Sin}[c+d\,x]\right)\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B+C\,\mathrm{Tan}[c+d\,x]\right)}{3\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}$$

Problem 16: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]^6\,\left(a+b\,\mathrm{Tan}[c+d\,x]\right)^2\,\left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 151 leaves, 7 steps):

$$\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,x-\frac{\left(b^2\,C-a\,(2\,b\,B+a\,C)\right)\,\mathrm{Cot}[c+d\,x]}{d}+\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\mathrm{Cot}[c+d\,x]^2}{2\,d}-$$
$$\frac{a\,(2\,b\,B+a\,C)\,\mathrm{Cot}[c+d\,x]^3}{3\,d}-\frac{a^2\,B\,\mathrm{Cot}[c+d\,x]^4}{4\,d}+\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]}{d}$$

Result (type 3, 561 leaves):

$$\frac{\left(-2\,a\,b\,B\,\mathrm{Cos}[c+d\,x]-a^2\,C\,\mathrm{Cos}[c+d\,x]\right)\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)}{3\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}-$$
$$\frac{a^2\,B\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)\,\mathrm{Csc}[c+d\,x]}{4\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+\frac{\left(2\,a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)\,\mathrm{Sin}[c+d\,x]}{2\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+$$
$$\left(\left(8\,a\,b\,B\,\mathrm{Cos}[c+d\,x]+4\,a^2\,C\,\mathrm{Cos}[c+d\,x]-3\,b^2\,C\,\mathrm{Cos}[c+d\,x]\right)\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)\,\mathrm{Sin}[c+d\,x]^2\right)\Big/$$
$$\left(3\,d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)\right)+$$
$$\frac{\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,(c+d\,x)\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)\,\mathrm{Sin}[c+d\,x]^3}{d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}+$$
$$\frac{\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\left(b+a\,\mathrm{Cot}[c+d\,x]\right)^2\,\left(C+B\,\mathrm{Cot}[c+d\,x]\right)\,\mathrm{Log}[\mathrm{Sin}[c+d\,x]]\,\mathrm{Sin}[c+d\,x]^3}{d\,\left(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]\right)^2\,\left(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x]\right)}$$

Problem 17: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{Tan}[c+d\,x])^3\,\left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 165 leaves, 5 steps):

$$-\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,x-\frac{\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}+\frac{b\,\left(a^2\,B-b^2\,B-2\,a\,b\,C\right)\,\mathrm{Tan}[c+d\,x]}{d}+\frac{(a\,B-b\,C)\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{2\,d}+\frac{B\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{3\,d}+\frac{C\,(a+b\,\mathrm{Tan}[c+d\,x])^4}{4\,b\,d}$$

Result (type 3, 600 leaves):

$$\frac{b^3\,C\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])}{4\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])}-\frac{b\,\left(-3\,a\,b\,B-3\,a^2\,C+2\,b^2\,C\right)\,\mathrm{Cos}[c+d\,x]^2\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])}{2\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])}-\frac{\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,(c+d\,x)\,\mathrm{Cos}[c+d\,x]^4\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])}+\frac{\left(-a^3\,B+3\,a\,b^2\,B+3\,a^2\,b\,C-b^3\,C\right)\,\mathrm{Cos}[c+d\,x]^4\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])}{d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])}+\left(\mathrm{Cos}[c+d\,x]^3\,\left(9\,a^2\,b\,B\,\mathrm{Sin}[c+d\,x]-4\,b^3\,B\,\mathrm{Sin}[c+d\,x]+3\,a^3\,C\,\mathrm{Sin}[c+d\,x]-12\,a\,b^2\,C\,\mathrm{Sin}[c+d\,x]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\right)+\frac{\mathrm{Cos}[c+d\,x]\,\left(b^3\,B\,\mathrm{Sin}[c+d\,x]+3\,a\,b^2\,C\,\mathrm{Sin}[c+d\,x]\right)\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,(B+C\,\mathrm{Tan}[c+d\,x])}{3\,d\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])}$$

Problem 18: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Cot}[c+d\,x]\,(a+b\,\mathrm{Tan}[c+d\,x])^3\,\left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 140 leaves, 5 steps):

$$\left(a^3\,B-3\,a\,b^2\,B-3\,a^2\,b\,C+b^3\,C\right)\,x-\frac{\left(3\,a^2\,b\,B-b^3\,B+a^3\,C-3\,a\,b^2\,C\right)\,\mathrm{Log}[\mathrm{Cos}[c+d\,x]]}{d}+\frac{b\,\left(2\,a\,b\,B+a^2\,C-b^2\,C\right)\,\mathrm{Tan}[c+d\,x]}{d}+\frac{(b\,B+a\,C)\,(a+b\,\mathrm{Tan}[c+d\,x])^2}{2\,d}+\frac{C\,(a+b\,\mathrm{Tan}[c+d\,x])^3}{3\,d}$$

Result (type 3, 509 leaves):

$$\frac{\left(a^3 B - 3 a b^2 B - 3 a^2 b C + b^3 C\right) (c + d x) (b + a \text{Cot}[c + d x])^3 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x]^4}{d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])} +$$
$$\frac{\left(-3 a^2 b B + b^3 B - a^3 C + 3 a b^2 C\right) (b + a \text{Cot}[c + d x])^3 (C + B \text{Cot}[c + d x]) \text{Log}[\text{Cos}[c + d x]] \text{Sin}[c + d x]^4}{d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])} +$$
$$\left((b + a \text{Cot}[c + d x])^3 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x]^3 \left(9 a b^2 B \text{Sin}[c + d x] + 9 a^2 b C \text{Sin}[c + d x] - 4 b^3 C \text{Sin}[c + d x]\right) \text{Tan}[c + d x]\right) /$$
$$\left(3 d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])\right) +$$
$$\frac{b^2 (b B + 3 a C) (b + a \text{Cot}[c + d x])^3 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x]^2 \text{Tan}[c + d x]^2}{2 d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])} +$$
$$\frac{b^3 C (b + a \text{Cot}[c + d x])^3 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x]^2 \text{Tan}[c + d x]^3}{3 d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])}$$

Problem 19: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c + d x]^2 (a + b \text{Tan}[c + d x])^3 \left(B \text{Tan}[c + d x] + C \text{Tan}[c + d x]^2\right) dx$$

Optimal (type 3, 117 leaves, 6 steps):

$$\left(3 a^2 b B - b^3 B + a^3 C - 3 a b^2 C\right) x - \frac{b \left(3 a b B + 3 a^2 C - b^2 C\right) \text{Log}[\text{Cos}[c + d x]]}{d} +$$
$$\frac{a^3 B \text{Log}[\text{Sin}[c + d x]]}{d} + \frac{b^2 (b B + 2 a C) \text{Tan}[c + d x]}{d} + \frac{b C (a + b \text{Tan}[c + d x])^2}{2 d}$$

Result (type 3, 490 leaves):

$$\frac{b^3 C \text{Cos}[c + d x] (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x] (a + b \text{Tan}[c + d x])^3}{2 d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])} +$$
$$\left(\left(3 a^2 b B - b^3 B + a^3 C - 3 a b^2 C\right) (c + d x) \text{Cos}[c + d x]^3 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x] (a + b \text{Tan}[c + d x])^3\right) /$$
$$\left(d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])\right) +$$
$$\left(\left(-3 a b^2 B - 3 a^2 b C + b^3 C\right) \text{Cos}[c + d x]^3 (C + B \text{Cot}[c + d x]) \text{Log}[\text{Cos}[c + d x]] \text{Sin}[c + d x] (a + b \text{Tan}[c + d x])^3\right) /$$
$$\left(d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])\right) +$$
$$\frac{a^3 B \text{Cos}[c + d x]^3 (C + B \text{Cot}[c + d x]) \text{Log}[\text{Sin}[c + d x]] \text{Sin}[c + d x] (a + b \text{Tan}[c + d x])^3}{d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])} +$$
$$\left(\text{Cos}[c + d x]^2 (C + B \text{Cot}[c + d x]) \text{Sin}[c + d x] \left(b^3 B \text{Sin}[c + d x] + 3 a b^2 C \text{Sin}[c + d x]\right) (a + b \text{Tan}[c + d x])^3\right) /$$
$$\left(d (a \text{Cos}[c + d x] + b \text{Sin}[c + d x])^3 (B \text{Cos}[c + d x] + C \text{Sin}[c + d x])\right)$$

Problem 23: Result more than twice size of optimal antiderivative.

$$\int \text{Cot}[c + d x]^6 (a + b \text{Tan}[c + d x])^3 \left(B \text{Tan}[c + d x] + C \text{Tan}[c + d x]^2\right) dx$$

Optimal (type 3, 191 leaves, 7 steps):

$$\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) x+\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) \operatorname{Cot}[c+d x]}{d}+\frac{a\left(2 a^2 B-5 b^2 B-6 a b C\right) \operatorname{Cot}[c+d x]^2}{4 d}-\frac{a^2(3 b B+2 a C) \operatorname{Cot}[c+d x]^3}{6 d}+\frac{\left(a^3 B-3 a b^2 B-3 a^2 b C+b^3 C\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{a B \operatorname{Cot}[c+d x]^4(a+b \operatorname{Tan}[c+d x])^2}{4 d}$$

Result (type 3, 598 leaves) :

$$-\frac{a^3 B(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x])}{4 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+\frac{\left(-3 a^2 b B \operatorname{Cos}[c+d x]-a^3 C \operatorname{Cos}[c+d x]\right)(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]}{3 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+\frac{a\left(2 a^2 B-3 b^2 B-3 a b C\right)(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^2}{2 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+\left(\left(12 a^2 b B \operatorname{Cos}[c+d x]-3 b^3 B \operatorname{Cos}[c+d x]+4 a^3 C \operatorname{Cos}[c+d x]-9 a b^2 C \operatorname{Cos}[c+d x]\right)(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^3\right) / \left(3 d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right)(c+d x)(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x]) \operatorname{Sin}[c+d x]^4}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+\frac{\left(a^3 B-3 a b^2 B-3 a^2 b C+b^3 C\right)(b+a \operatorname{Cot}[c+d x])^3(C+B \operatorname{Cot}[c+d x]) \operatorname{Log}[\operatorname{Sin}[c+d x]] \operatorname{Sin}[c+d x]^4}{d(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3(B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}$$

Problem 24: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cot}[c+d x]^7(a+b \operatorname{Tan}[c+d x])^3\left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right) dx$$

Optimal (type 3, 233 leaves, 8 steps) :

$$-\left(a^3 B-3 a b^2 B-3 a^2 b C+b^3 C\right) x-\frac{\left(a^3 B-3 a b^2 B-3 a^2 b C+b^3 C\right) \operatorname{Cot}[c+d x]}{d}+\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) \operatorname{Cot}[c+d x]^2}{2 d}+\frac{a\left(5 a^2 B-12 b^2 B-15 a b C\right) \operatorname{Cot}[c+d x]^3}{15 d}-\frac{a^2(7 b B+5 a C) \operatorname{Cot}[c+d x]^4}{20 d}+\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{d}-\frac{a B \operatorname{Cot}[c+d x]^5(a+b \operatorname{Tan}[c+d x])^2}{5 d}$$

Result (type 3, 680 leaves) :

$$\frac{\left(3 a^2 b B-b^3 B+a^3 C-3 a b^2 C\right) (b+a \text{Cot}[c+d x])^3 (C+B \text{Cot}[c+d x]) \text{Log}[\text{Sin}[c+d x]] \text{Sin}[c+d x]^4}{d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])}+$$

$$\frac{1}{240 d (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])}$$
$$(b+a \text{Cot}[c+d x])^3 (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x] \left(-50 a^3 B \text{Cos}[c+d x]+60 a b^2 B \text{Cos}[c+d x]+60 a^2 b C \text{Cos}[c+d x]-30 b^3 C \text{Cos}[c+d x]+\right.$$
$$25 a^3 B \text{Cos}[3 (c+d x)]-120 a b^2 B \text{Cos}[3 (c+d x)]-120 a^2 b C \text{Cos}[3 (c+d x)]+45 b^3 C \text{Cos}[3 (c+d x)]-23 a^3 B \text{Cos}[5 (c+d x)]+$$
$$60 a b^2 B \text{Cos}[5 (c+d x)]+60 a^2 b C \text{Cos}[5 (c+d x)]-15 b^3 C \text{Cos}[5 (c+d x)]+360 a^2 b B \text{Sin}[c+d x]-90 b^3 B \text{Sin}[c+d x]+$$
$$120 a^3 C \text{Sin}[c+d x]-270 a b^2 C \text{Sin}[c+d x]-150 a^3 B (c+d x) \text{Sin}[c+d x]+450 a b^2 B (c+d x) \text{Sin}[c+d x]+450 a^2 b C (c+d x) \text{Sin}[c+d x]-$$
$$150 b^3 C (c+d x) \text{Sin}[c+d x]-180 a^2 b B \text{Sin}[3 (c+d x)]+30 b^3 B \text{Sin}[3 (c+d x)]-60 a^3 C \text{Sin}[3 (c+d x)]+90 a b^2 C \text{Sin}[3 (c+d x)]+$$
$$75 a^3 B (c+d x) \text{Sin}[3 (c+d x)]-225 a b^2 B (c+d x) \text{Sin}[3 (c+d x)]-225 a^2 b C (c+d x) \text{Sin}[3 (c+d x)]+75 b^3 C (c+d x) \text{Sin}[3 (c+d x)]-$$
$$\left.15 a^3 B (c+d x) \text{Sin}[5 (c+d x)]+45 a b^2 B (c+d x) \text{Sin}[5 (c+d x)]+45 a^2 b C (c+d x) \text{Sin}[5 (c+d x)]-15 b^3 C (c+d x) \text{Sin}[5 (c+d x)]\right)$$

- **Problem 26: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[c+d x] \left(B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right)}{a+b \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 101 leaves, 6 steps) :

$$-\frac{(a B+b C) x}{a^2+b^2}-\frac{(b B-a C) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right) d}+\frac{a^2 (b B-a C) \text{Log}[a+b \text{Tan}[c+d x]]}{b^2 \left(a^2+b^2\right) d}+\frac{C \text{Tan}[c+d x]}{b d}$$

Result (type 3, 203 leaves) :

$$\left((a \text{Cos}[c+d x]+b \text{Sin}[c+d x]) (B+C \text{Tan}[c+d x]) \left(-a b^2 B c-b^3 c C-a b^2 B d x-b^3 C d x+\left(a^2+b^2\right) (-b B+a C) \text{Log}[\text{Cos}[c+d x]]+\right.\right.$$
$$\left.\left.a^2 b B \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]-a^3 C \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+b \left(a^2+b^2\right) C \text{Tan}[c+d x]\right)\right) \Big/$$
$$\left((a-i b) (a+i b) b^2 d (B \text{Cos}[c+d x]+C \text{Sin}[c+d x]) (a+b \text{Tan}[c+d x])\right)$$

- **Problem 30: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\text{Cot}[c+d x]^3 \left(B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right)}{a+b \text{Tan}[c+d x]} \, dx$$

Optimal (type 3, 103 leaves, 5 steps) :

$$-\frac{(a B+b C) x}{a^2+b^2}-\frac{B \text{Cot}[c+d x]}{a d}-\frac{(b B-a C) \text{Log}[\text{Sin}[c+d x]]}{a^2 d}+\frac{b^2 (b B-a C) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{a^2 \left(a^2+b^2\right) d}$$

Result (type 3, 201 leaves) :

$$-\left((C+B \text{Cot}[c+d x]) \left(a^3 B c+a^2 b c C+a^3 B d x+a^2 b C d x+a \left(a^2+b^2\right) B \text{Cot}[c+d x]-\left(a^2+b^2\right) (-b B+a C) \text{Log}[\text{Sin}[c+d x]]-\right.\right.$$
$$\left.\left.b^3 B \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]+a b^2 C \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]\right) (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])\right) \Big/$$
$$\left(a^2 (a-i b) (a+i b) d (b+a \text{Cot}[c+d x]) (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)$$

Problem 32: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x]^2 \left(B\,\text{Tan}[c+d x]+C\,\text{Tan}[c+d x]^2\right)}{(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 208 leaves, 7 steps):

$$-\frac{\left(2 a b B-a^2 C+b^2 C\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(a^2 B-b^2 B+2 a b C\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^2 d}+$$
$$\frac{a^2 \left(a^2 b B+3 b^3 B-2 a^3 C-4 a b^2 C\right) \text{Log}[a+b\,\text{Tan}[c+d x]]}{b^3 \left(a^2+b^2\right)^2 d}-\frac{\left(a b B-2 a^2 C-b^2 C\right) \text{Tan}[c+d x]}{b^2 \left(a^2+b^2\right) d}+\frac{a (b B-a C) \text{Tan}[c+d x]^2}{b \left(a^2+b^2\right) d (a+b\,\text{Tan}[c+d x])}$$

Result (type 3, 869 leaves):

$$\frac{\left(-2 a b B+a^2 C-b^2 C\right) (c+d x) \text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 (B+C\,\text{Tan}[c+d x])}{(a-i b)^2 (a+i b)^2 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2}+$$
$$\Big(\left(i a^7 b^3 B+a^6 b^4 B+4 i a^5 b^5 B+4 a^4 b^6 B+3 i a^3 b^7 B+3 a^2 b^8 B-2 i a^8 b^2 C-2 a^7 b^3 C-6 i a^6 b^4 C-6 a^5 b^5 C-4 i a^4 b^6 C-4 a^3 b^7 C\right)$$
$$(c+d x) \text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 (B+C\,\text{Tan}[c+d x])\Big)\Big/$$
$$\left((a-i b)^4 (a+i b)^3 b^5 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2\right)-$$
$$\left(i \left(a^4 b B+3 a^2 b^3 B-2 a^5 C-4 a^3 b^2 C\right) \text{ArcTan}[\text{Tan}[c+d x]] \text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 (B+C\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(b^3 \left(a^2+b^2\right)^2 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2\right)+$$
$$\frac{(-b B+2 a C) \text{Log}[\text{Cos}[c+d x]] \text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 (B+C\,\text{Tan}[c+d x])}{b^3 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2}+$$
$$\left(\left(a^4 b B+3 a^2 b^3 B-2 a^5 C-4 a^3 b^2 C\right) \text{Log}\left[(a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2\right] \text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 (B+C\,\text{Tan}[c+d x])\right)\Big/$$
$$\left(2 b^3 \left(a^2+b^2\right)^2 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2\right)+$$
$$\frac{\text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x]) \left(-a^2 b B\,\text{Sin}[c+d x]+a^3 C\,\text{Sin}[c+d x]\right) (B+C\,\text{Tan}[c+d x])}{(a-i b) (a+i b) b^2 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2}+$$
$$\frac{C\,\text{Sec}[c+d x] (a\,\text{Cos}[c+d x]+b\,\text{Sin}[c+d x])^2 \text{Tan}[c+d x] (B+C\,\text{Tan}[c+d x])}{b^2 d (B\,\text{Cos}[c+d x]+C\,\text{Sin}[c+d x]) (a+b\,\text{Tan}[c+d x])^2}$$

Problem 33: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[c+d x] \left(B\,\text{Tan}[c+d x]+C\,\text{Tan}[c+d x]^2\right)}{(a+b\,\text{Tan}[c+d x])^2}\,dx$$

Optimal (type 3, 157 leaves, 6 steps):

$$-\frac{\left(a^2 B-b^2 B+2 a b C\right) x}{\left(a^2+b^2\right)^2}-\frac{\left(2 a b B-a^2 C+b^2 C\right) \text{Log}[\text{Cos}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{a \left(2 b^3 B-a^3 C-3 a b^2 C\right) \text{Log}[a+b \text{Tan}[c+d x]]}{b^2 \left(a^2+b^2\right)^2 d}-\frac{a^2 (b B-a C)}{b^2 \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 324 leaves) :

$$\frac{1}{2 b^2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}\Big(a \left(2 (a+i b)^2 \left(-b^2 B+i a^2 C+2 a b C\right) (c+d x)-2 \left(a^2+b^2\right)^2 C \text{Log}[\text{Cos}[c+d x]]+a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+b \left(2 (a+i b) \left(-i b^3 B (c+d x)+i a^3 C (i+c+d x)-a b^2 (-2 i C (c+d x)+B (i+c+d x))+a^2 b (B+C (i+c+d x))\right)-2 \left(a^2+b^2\right)^2 C \text{Log}[\text{Cos}[c+d x]]+a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right) \text{Tan}[c+d x]-2 i a \left(-2 b^3 B+a^3 C+3 a b^2 C\right) \text{ArcTan}[\text{Tan}[c+d x]] (a+b \text{Tan}[c+d x])\Big)$$

Problem 34: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 115 leaves, 3 steps) :

$$\frac{\left(2 a b B-a^2 C+b^2 C\right) x}{\left(a^2+b^2\right)^2}-\frac{\left(a^2 B-b^2 B+2 a b C\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}+\frac{a (b B-a C)}{b \left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 252 leaves) :

$$\frac{1}{2 \left(a^2+b^2\right)^2 d (a+b \text{Tan}[c+d x])}\Big(a \left(-2 i (a+i b)^2 (B-i C) (c+d x)+\left(-a^2 B+b^2 B-2 a b C\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right)+\left(-2 i (a+i b) \left(i a^2 C+b^2 (C (c+d x)+i B (i+c+d x))+a b (B (-i+c+d x)-i C (i+c+d x))\right)+b \left(-a^2 B+b^2 B-2 a b C\right) \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right) \text{Tan}[c+d x]+2 i \left(a^2 B-b^2 B+2 a b C\right) \text{ArcTan}[\text{Tan}[c+d x]] (a+b \text{Tan}[c+d x])\Big)$$

Problem 35: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[c+d x] \left(B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right)}{(a+b \text{Tan}[c+d x])^2} \, dx$$

Optimal (type 3, 111 leaves, 4 steps) :

$$\frac{\left(a^2 B-b^2 B+2 a b C\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(2 a b B-a^2 C+b^2 C\right) \text{Log}[a \text{Cos}[c+d x]+b \text{Sin}[c+d x]]}{\left(a^2+b^2\right)^2 d}-\frac{b B-a C}{\left(a^2+b^2\right) d (a+b \text{Tan}[c+d x])}$$

Result (type 3, 257 leaves) :

$$\frac{1}{2\,a\,\left(a^2+b^2\right)^2\,d\,\left(b+a\,\text{Cot}[c+d\,x]\right)}\left(2\,\mathrm{i}\,a\,\left(-2\,a\,b\,B+a^2\,C-b^2\,C\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\left(b+a\,\text{Cot}[c+d\,x]\right)+a^2\,\text{Cot}[c+d\,x]\,\left(2\,\left(a+\mathrm{i}\,b\right)^2\,\left(B-\mathrm{i}\,C\right)\,\left(c+d\,x\right)+\left(2\,a\,b\,B-a^2\,C+b^2\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)+b\,\left(2\,\left(a+\mathrm{i}\,b\right)\,\left(-\mathrm{i}\,b^2\,B+a^2\,\left(B\,\left(c+d\,x\right)-\mathrm{i}\,C\,\left(-\mathrm{i}+c+d\,x\right)\right)+a\,b\,\left(B\,\left(1+\mathrm{i}\,c+\mathrm{i}\,d\,x\right)+C\,\left(\mathrm{i}+c+d\,x\right)\right)\right)+a\,\left(2\,a\,b\,B-a^2\,C+b^2\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)\right)$$

- **Problem 36: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^2\,\left(B\,\text{Tan}[c+d\,x]+C\,\text{Tan}[c+d\,x]^2\right)}{\left(a+b\,\text{Tan}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 137 leaves, 5 steps):

$$-\frac{\left(2\,a\,b\,B-a^2\,C+b^2\,C\right)\,x}{\left(a^2+b^2\right)^2}+\frac{B\,\text{Log}[\text{Sin}[c+d\,x]]}{a^2\,d}-\frac{b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{a^2\,\left(a^2+b^2\right)^2\,d}+\frac{b\,\left(b\,B-a\,C\right)}{a\,\left(a^2+b^2\right)\,d\,\left(a+b\,\text{Tan}[c+d\,x]\right)}$$

Result (type 3, 325 leaves):

$$\frac{1}{2\,a^2\,\left(a^2+b^2\right)^2\,d\,\left(b+a\,\text{Cot}[c+d\,x]\right)}\left(2\,\mathrm{i}\,b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{ArcTan}[\text{Tan}[c+d\,x]]\,\left(b+a\,\text{Cot}[c+d\,x]\right)+a\,\text{Cot}[c+d\,x]\,\left(2\,\left(a+\mathrm{i}\,b\right)^2\,\left(-2\,a\,b\,B+\mathrm{i}\,b^2\,B+a^2\,C\right)\,\left(c+d\,x\right)+2\,\left(a^2+b^2\right)^2\,B\,\text{Log}[\text{Sin}[c+d\,x]]-b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)+b\,\left(2\,\left(a+\mathrm{i}\,b\right)\,\left(a^3\,C\,\left(c+d\,x\right)-b^3\,B\,\left(-\mathrm{i}+c+d\,x\right)+a^2\,b\,\left(C\,\left(1+\mathrm{i}\,c+\mathrm{i}\,d\,x\right)-2\,B\,\left(c+d\,x\right)\right)-\mathrm{i}\,a\,b^2\,\left(C+B\,\left(-\mathrm{i}+c+d\,x\right)\right)\right)+2\,\left(a^2+b^2\right)^2\,B\,\text{Log}[\text{Sin}[c+d\,x]]-b\,\left(3\,a^2\,b\,B+b^3\,B-2\,a^3\,C\right)\,\text{Log}\left[\left(a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]\right)^2\right]\right)\right)$$

- **Problem 37: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[c+d\,x]^3\,\left(B\,\text{Tan}[c+d\,x]+C\,\text{Tan}[c+d\,x]^2\right)}{\left(a+b\,\text{Tan}[c+d\,x]\right)^2}\,dx$$

Optimal (type 3, 192 leaves, 6 steps):

$$-\frac{\left(a^2\,B-b^2\,B+2\,a\,b\,C\right)\,x}{\left(a^2+b^2\right)^2}-\frac{\left(2\,b\,B-a\,C\right)\,\text{Log}[\text{Sin}[c+d\,x]]}{a^3\,d}+\frac{b^2\,\left(4\,a^2\,b\,B+2\,b^3\,B-3\,a^3\,C-a\,b^2\,C\right)\,\text{Log}[a\,\text{Cos}[c+d\,x]+b\,\text{Sin}[c+d\,x]]}{a^3\,\left(a^2+b^2\right)^2\,d}-\frac{b\,\left(a^2\,B+2\,b^2\,B-a\,b\,C\right)}{a^2\,\left(a^2+b^2\right)\,d\,\left(a+b\,\text{Tan}[c+d\,x]\right)}-\frac{B\,\text{Cot}[c+d\,x]}{a\,d\,\left(a+b\,\text{Tan}[c+d\,x]\right)}$$

Result (type 3, 873 leaves):

$$-\frac{\left(a^2 B-b^2 B+2 a b C\right) (c+d x) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{(a-i b)^2 (a+i b)^2 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+$$

$$\left(\left(4 i a^{10} b^3 B+4 a^9 b^4 B+6 i a^8 b^5 B+6 a^7 b^6 B+2 i a^6 b^7 B+2 a^5 b^8 B-3 i a^{11} b^2 C-3 a^{10} b^3 C-4 i a^9 b^4 C-4 a^8 b^5 C-i a^7 b^6 C-a^6 b^7 C\right)\right.$$
$$\left.(c+d x) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^8 (a-i b)^4 (a+i b)^3 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$
$$\left(i \left(4 a^2 b^3 B+2 b^5 B-3 a^3 b^2 C-a b^4 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) \Big/$$
$$\left(a^3 \left(a^2+b^2\right)^2 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$
$$\frac{B \operatorname{Cot}[c+d x] (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^2 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+$$
$$\frac{(-2 b B+a C) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] \operatorname{Log}[\operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2}{a^3 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+$$
$$\left(\left(4 a^2 b^3 B+2 b^5 B-3 a^3 b^2 C-a b^4 C\right) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right) \Big/$$
$$\left(2 a^3 \left(a^2+b^2\right)^2 d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$
$$\frac{(C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]) \left(b^4 B \operatorname{Sin}[c+d x]-a b^3 C \operatorname{Sin}[c+d x]\right)}{a^3 (a-i b) (a+i b) d (b+a \operatorname{Cot}[c+d x])^2 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}$$

- **Problem 38: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c+d x]^3 \left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right)}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 331 leaves, 8 steps):

$$\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) x}{\left(a^2+b^2\right)^3}+\frac{\left(3 a^2 b B-b^3 B-a^3 C+3 a b^2 C\right) \operatorname{Log}[\operatorname{Cos}[c+d x]]}{\left(a^2+b^2\right)^3 d}+$$
$$\frac{a^2 \left(a^4 b B+3 a^2 b^3 B+6 b^5 B-3 a^5 C-9 a^3 b^2 C-10 a b^4 C\right) \operatorname{Log}[a+b \operatorname{Tan}[c+d x]]}{b^4 \left(a^2+b^2\right)^3 d}-\frac{\left(a^3 b B+3 a b^3 B-3 a^4 C-6 a^2 b^2 C-b^4 C\right) \operatorname{Tan}[c+d x]}{b^3 \left(a^2+b^2\right)^2 d}+$$
$$\frac{a (b B-a C) \operatorname{Tan}[c+d x]^3}{2 b \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^2}+\frac{a \left(a^2 b B+5 b^3 B-3 a^3 C-7 a b^2 C\right) \operatorname{Tan}[c+d x]^2}{2 b^2 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 1146 leaves):

$$\frac{a^4 (-b B + a C) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]) (B + C \operatorname{Tan}[c + d x])}{2 (a - i b)^2 (a + i b)^2 b^2 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3} +$$

$$\Big(\big(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\big) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\Big) \Big/ \Big((a - i b)^3 (a + i b)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\Big) +$$

$$\Big(\big(i a^{11} b^4 B + a^{10} b^5 B + 5 i a^9 b^6 B + 5 a^8 b^7 B + 13 i a^7 b^8 B + 13 a^6 b^9 B + 15 i a^5 b^{10} B + 15 a^4 b^{11} B + 6 i a^3 b^{12} B + 6 a^2 b^{13} B - 3 i a^{12} b^3 C - 3 a^{11} b^4 C - 15 i a^{10} b^5 C - 15 a^9 b^6 C - 31 i a^8 b^7 C - 31 a^7 b^8 C - 29 i a^6 b^9 C - 29 a^5 b^{10} C - 10 i a^4 b^{11} C - 10 a^3 b^{12} C\big) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\Big) \Big/ \Big((a - i b)^6 (a + i b)^5 b^7 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\Big) -$$

$$\Big(i \big(a^6 b B + 3 a^4 b^3 B + 6 a^2 b^5 B - 3 a^7 C - 9 a^5 b^2 C - 10 a^3 b^4 C\big) \operatorname{ArcTan}[\operatorname{Tan}[c + d x]] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\Big) \Big/ \Big(b^4 \big(a^2 + b^2\big)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\Big) +$$

$$\frac{(-b B + 3 a C) \operatorname{Log}[\operatorname{Cos}[c + d x]] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])}{b^4 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3} +$$

$$\Big(\big(a^6 b B + 3 a^4 b^3 B + 6 a^2 b^5 B - 3 a^7 C - 9 a^5 b^2 C - 10 a^3 b^4 C\big) \operatorname{Log}\big[(a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2\big] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\Big) \Big/ \Big(2 b^4 \big(a^2 + b^2\big)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\Big) +$$

$$\Big(\operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2 \big(-a^4 b B \operatorname{Sin}[c + d x] - 4 a^2 b^3 B \operatorname{Sin}[c + d x] + 2 a^5 C \operatorname{Sin}[c + d x] + 5 a^3 b^2 C \operatorname{Sin}[c + d x]\big) (B + C \operatorname{Tan}[c + d x])\Big) \Big/ \Big((a - i b)^2 (a + i b)^2 b^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\Big) +$$

$$\frac{C \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 \operatorname{Tan}[c + d x] (B + C \operatorname{Tan}[c + d x])}{b^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3}$$

- **Problem 39: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c + d x]^2 \big(B \operatorname{Tan}[c + d x] + C \operatorname{Tan}[c + d x]^2\big)}{(a + b \operatorname{Tan}[c + d x])^3} \, dx$$

Optimal (type 3, 250 leaves, 7 steps):

$$-\frac{\big(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\big) x}{\big(a^2 + b^2\big)^3} + \frac{\big(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\big) \operatorname{Log}[\operatorname{Cos}[c + d x]]}{\big(a^2 + b^2\big)^3 d} + \frac{a \big(a^2 b^3 B - 3 b^5 B + a^5 C + 3 a^3 b^2 C + 6 a b^4 C\big) \operatorname{Log}[a + b \operatorname{Tan}[c + d x]]}{b^3 \big(a^2 + b^2\big)^3 d} + \frac{a (b B - a C) \operatorname{Tan}[c + d x]^2}{2 b \big(a^2 + b^2\big) d (a + b \operatorname{Tan}[c + d x])^2} - \frac{a^2 \big(2 b^3 B - a^3 C - 3 a b^2 C\big)}{b^3 \big(a^2 + b^2\big)^2 d (a + b \operatorname{Tan}[c + d x])}$$

Result (type 3, 998 leaves):

$$-\frac{a^3 (-b B + a C) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]) (B + C \operatorname{Tan}[c + d x])}{2 (a - i b)^2 (a + i b)^2 b d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3} +$$
$$\left(\left(-3 a^2 b B + b^3 B + a^3 C - 3 a b^2 C\right) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left((a - i b)^3 (a + i b)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) +$$
$$\left(\left(i a^8 b^5 B + a^7 b^6 B - i a^6 b^7 B - a^5 b^8 B - 5 i a^4 b^9 B - 5 a^3 b^{10} B - 3 i a^2 b^{11} B - 3 a b^{12} B + i a^{11} b^2 C + a^{10} b^3 C + 5 i a^9 b^4 C + 5 a^8 b^5 C + 13 i a^7 b^6 C +\right.\right.$$
$$\left.13 a^6 b^7 C + 15 i a^5 b^8 C + 15 a^4 b^9 C + 6 i a^3 b^{10} C + 6 a^2 b^{11} C\right) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\Big) \Big/$$
$$\left((a - i b)^6 (a + i b)^5 b^5 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) -$$
$$\left(i \left(a^3 b^3 B - 3 a b^5 B + a^6 C + 3 a^4 b^2 C + 6 a^2 b^4 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c + d x]] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left(b^3 \left(a^2 + b^2\right)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) -$$
$$\frac{C \operatorname{Log}[\operatorname{Cos}[c + d x]] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])}{b^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3} +$$
$$\left(\left(a^3 b^3 B - 3 a b^5 B + a^6 C + 3 a^4 b^2 C + 6 a^2 b^4 C\right) \operatorname{Log}\left[(a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2\right] \operatorname{Sec}[c + d x]^2\right.$$
$$\left.(a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/ \left(2 b^3 \left(a^2 + b^2\right)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) +$$
$$\left(\operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2 \left(3 a b^3 B \operatorname{Sin}[c + d x] - a^4 C \operatorname{Sin}[c + d x] - 4 a^2 b^2 C \operatorname{Sin}[c + d x]\right) (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left((a - i b)^2 (a + i b)^2 b^2 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right)$$

- **Problem 40: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Tan}[c + d x] \left(B \operatorname{Tan}[c + d x] + C \operatorname{Tan}[c + d x]^2\right)}{(a + b \operatorname{Tan}[c + d x])^3} \, dx$$

Optimal (type 3, 189 leaves, 5 steps) :

$$-\frac{\left(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\right) x}{\left(a^2 + b^2\right)^3} - \frac{\left(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\right) \operatorname{Log}[a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]]}{\left(a^2 + b^2\right)^3 d} -$$
$$\frac{a^2 (b B - a C)}{2 b^2 \left(a^2 + b^2\right) d (a + b \operatorname{Tan}[c + d x])^2} + \frac{a \left(2 b^3 B - a^3 C - 3 a b^2 C\right)}{b^2 \left(a^2 + b^2\right)^2 d (a + b \operatorname{Tan}[c + d x])}$$

Result (type 3, 845 leaves) :

$$\frac{a^2 (-b B + a C) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]) (B + C \operatorname{Tan}[c + d x])}{2 (a - i b)^2 (a + i b)^2 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3} -$$
$$\left(\left(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\right) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left((a - i b)^3 (a + i b)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) +$$
$$\left(\left(-3 i a^9 b B - 3 a^8 b^2 B - 5 i a^7 b^3 B - 5 a^6 b^4 B - i a^5 b^5 B - a^4 b^6 B + i a^3 b^7 B + a^2 b^8 B + i a^{10} C + a^9 b C - i a^8 b^2 C - a^7 b^3 C -\right.\right.$$
$$\left.\left. 5 i a^6 b^4 C - 5 a^5 b^5 C - 3 i a^4 b^6 C - 3 a^3 b^7 C\right) (c + d x) \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left(a^2 (a - i b)^6 (a + i b)^5 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) -$$
$$\left(i \left(-3 a^2 b B + b^3 B + a^3 C - 3 a b^2 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c + d x]] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left(\left(a^2 + b^2\right)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) +$$
$$\left(\left(-3 a^2 b B + b^3 B + a^3 C - 3 a b^2 C\right) \operatorname{Log}\left[(a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2\right] \operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3 (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left(2 \left(a^2 + b^2\right)^3 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right) +$$
$$\left(\operatorname{Sec}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2 \left(a^2 B \operatorname{Sin}[c + d x] - 2 b^2 B \operatorname{Sin}[c + d x] + 3 a b C \operatorname{Sin}[c + d x]\right) (B + C \operatorname{Tan}[c + d x])\right) \Big/$$
$$\left((a - i b)^2 (a + i b)^2 d (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x]) (a + b \operatorname{Tan}[c + d x])^3\right)$$

- **Problem 41: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{B \operatorname{Tan}[c + d x] + C \operatorname{Tan}[c + d x]^2}{(a + b \operatorname{Tan}[c + d x])^3} \, dx$$

Optimal (type 3, 179 leaves, 4 steps):

$$\frac{\left(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\right) x}{\left(a^2 + b^2\right)^3} - \frac{\left(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\right) \operatorname{Log}[a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]]}{\left(a^2 + b^2\right)^3 d} +$$
$$\frac{a (b B - a C)}{2 b \left(a^2 + b^2\right) d (a + b \operatorname{Tan}[c + d x])^2} + \frac{a^2 B - b^2 B + 2 a b C}{\left(a^2 + b^2\right)^2 d (a + b \operatorname{Tan}[c + d x])}$$

Result (type 3, 587 leaves):

$$\left(C\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\right.$$
$$\left(-\frac{8\,a\,(a^2-3\,b^2)\,(c+d\,x)}{(a^2+b^2)^3}+\frac{8\,b\,(-3\,a^2+b^2)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3}+\frac{-3\,a^2\,b+b^3}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$
$$\left.\left.\frac{6\,(a^2-3\,b^2)\,\mathrm{Sin}[c+d\,x]}{(a^2+b^2)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}+\frac{-b\,\mathrm{Cos}[2\,(c+d\,x)]+a\,\mathrm{Sin}[2\,(c+d\,x)]}{(a^2+b^2)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}\right)\,(B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/$$
$$\left(8\,d\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)+\left(B\,\mathrm{Sec}[c+d\,x]^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^3\right.$$
$$\left(-\frac{8\,b\,(-3\,a^2+b^2)\,(c+d\,x)}{(a^2+b^2)^3}-\frac{8\,a\,(a^2-3\,b^2)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3}-\frac{a\,(a^2-3\,b^2)}{(a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}+\right.$$
$$\left.\frac{6\,b\,(-3\,a^2+b^2)\,\mathrm{Sin}[c+d\,x]}{a\,(a^2+b^2)^2\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])}+\frac{2\,b^2\,\mathrm{Sin}[c+d\,x]^2+a\,(a+b\,\mathrm{Sin}[2\,(c+d\,x)])}{a\,(a^2+b^2)\,(a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x])^2}\right)$$
$$\left.(B+C\,\mathrm{Tan}[c+d\,x])\right)\Big/\left(8\,d\,(B\,\mathrm{Cos}[c+d\,x]+C\,\mathrm{Sin}[c+d\,x])\,(a+b\,\mathrm{Tan}[c+d\,x])^3\right)$$

- **Problem 42: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[c+d\,x]\,\left(B\,\mathrm{Tan}[c+d\,x]+C\,\mathrm{Tan}[c+d\,x]^2\right)}{(a+b\,\mathrm{Tan}[c+d\,x])^3}\,dx$$

Optimal (type 3, 175 leaves, 5 steps):

$$\frac{(a^3\,B-3\,a\,b^2\,B+3\,a^2\,b\,C-b^3\,C)\,x}{(a^2+b^2)^3}+\frac{(3\,a^2\,b\,B-b^3\,B-a^3\,C+3\,a\,b^2\,C)\,\mathrm{Log}[a\,\mathrm{Cos}[c+d\,x]+b\,\mathrm{Sin}[c+d\,x]]}{(a^2+b^2)^3\,d}-$$
$$\frac{b\,B-a\,C}{2\,(a^2+b^2)\,d\,(a+b\,\mathrm{Tan}[c+d\,x])^2}-\frac{2\,a\,b\,B-a^2\,C+b^2\,C}{(a^2+b^2)^2\,d\,(a+b\,\mathrm{Tan}[c+d\,x])}$$

Result (type 3, 854 leaves):

$$\frac{b^2 (-b B + a C) (C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])}{2 (a - i b)^2 (a + i b)^2 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])} +$$
$$\left(\left(a^3 B - 3 a b^2 B + 3 a^2 b C - b^3 C\right) (c + d x) (C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3\right) \Big/$$
$$\left((a - i b)^3 (a + i b)^3 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])\right) +$$
$$\left(\left(3 i a^9 b B + 3 a^8 b^2 B + 5 i a^7 b^3 B + 5 a^6 b^4 B + i a^5 b^5 B + a^4 b^6 B - i a^3 b^7 B - a^2 b^8 B - i a^{10} C - a^9 b C + i a^8 b^2 C + a^7 b^3 C + 5 i a^6 b^4 C + 5 a^5 b^5 C + 3 i a^4 b^6 C + 3 a^3 b^7 C\right) (c + d x) (C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3\right) \Big/$$
$$\left(a^2 (a - i b)^6 (a + i b)^5 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])\right) -$$
$$\left(i \left(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c + d x]] (C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3\right) \Big/$$
$$\left(\left(a^2 + b^2\right)^3 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])\right) +$$
$$\left(\left(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\right) (C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 \operatorname{Log}\left[(a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2\right] (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^3\right) \Big/$$
$$\left(2 \left(a^2 + b^2\right)^3 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])\right) +$$
$$\left((C + B \operatorname{Cot}[c + d x]) \operatorname{Csc}[c + d x]^2 (a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x])^2 \left(3 a b^2 B \operatorname{Sin}[c + d x] - 2 a^2 b C \operatorname{Sin}[c + d x] + b^3 C \operatorname{Sin}[c + d x]\right)\right) \Big/$$
$$\left(a (a - i b)^2 (a + i b)^2 d (b + a \operatorname{Cot}[c + d x])^3 (B \operatorname{Cos}[c + d x] + C \operatorname{Sin}[c + d x])\right)$$

- **Problem 43: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c + d x]^2 \left(B \operatorname{Tan}[c + d x] + C \operatorname{Tan}[c + d x]^2\right)}{(a + b \operatorname{Tan}[c + d x])^3} \, dx$$

Optimal (type 3, 215 leaves, 6 steps):

$$-\frac{\left(3 a^2 b B - b^3 B - a^3 C + 3 a b^2 C\right) x}{\left(a^2 + b^2\right)^3} + \frac{B \operatorname{Log}[\operatorname{Sin}[c + d x]]}{a^3 d} - \frac{b \left(6 a^4 b B + 3 a^2 b^3 B + b^5 B - 3 a^5 C + a^3 b^2 C\right) \operatorname{Log}[a \operatorname{Cos}[c + d x] + b \operatorname{Sin}[c + d x]]}{a^3 \left(a^2 + b^2\right)^3 d} +$$
$$\frac{b (b B - a C)}{2 a \left(a^2 + b^2\right) d (a + b \operatorname{Tan}[c + d x])^2} + \frac{b \left(3 a^2 b B + b^3 B - 2 a^3 C\right)}{a^2 \left(a^2 + b^2\right)^2 d (a + b \operatorname{Tan}[c + d x])}$$

Result (type 3, 1004 leaves):

$$-\frac{b^3 (-b B+a C) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])}{2 a (a-i b)^2 (a+i b)^2 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+$$

$$\left(\left(-3 a^2 b B+b^3 B+a^3 C-3 a b^2 C\right) (c+d x) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left((a-i b)^3 (a+i b)^3 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$

$$\left(\left(-6 i a^{14} b^2 B-6 a^{13} b^3 B-15 i a^{12} b^4 B-15 a^{11} b^5 B-13 i a^{10} b^6 B-13 a^9 b^7 B-5 i a^8 b^8 B-5 a^7 b^9 B-i a^6 b^{10} B-a^5 b^{11} B+3 i a^{15} b C+3 a^{14} b^2 C+5 i a^{13} b^3 C+5 a^{12} b^4 C+i a^{11} b^5 C+a^{10} b^6 C-i a^9 b^7 C-a^8 b^8 C\right) (c+d x) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left(a^8 (a-i b)^6 (a+i b)^5 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)-$$

$$\left(i \left(-6 a^4 b^2 B-3 a^2 b^4 B-b^6 B+3 a^5 b C-a^3 b^3 C\right) \operatorname{ArcTan}[\operatorname{Tan}[c+d x]] (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left(a^3 \left(a^2+b^2\right)^3 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$

$$\frac{B (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 \operatorname{Log}[\operatorname{Sin}[c+d x]] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3}{a^3 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])}+$$

$$\left(\left(-6 a^4 b^2 B-3 a^2 b^4 B-b^6 B+3 a^5 b C-a^3 b^3 C\right) (C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 \operatorname{Log}\left[(a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2\right] (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^3\right) \Big/ \left(2 a^3 \left(a^2+b^2\right)^3 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)+$$

$$\left((C+B \operatorname{Cot}[c+d x]) \operatorname{Csc}[c+d x]^2 (a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x])^2 \left(-4 a^2 b^3 B \operatorname{Sin}[c+d x]-b^5 B \operatorname{Sin}[c+d x]+3 a^3 b^2 C \operatorname{Sin}[c+d x]\right)\right) \Big/ \left(a^3 (a-i b)^2 (a+i b)^2 d (b+a \operatorname{Cot}[c+d x])^3 (B \operatorname{Cos}[c+d x]+C \operatorname{Sin}[c+d x])\right)$$

- **Problem 44: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[c+d x]^3 \left(B \operatorname{Tan}[c+d x]+C \operatorname{Tan}[c+d x]^2\right)}{(a+b \operatorname{Tan}[c+d x])^3} \, dx$$

Optimal (type 3, 287 leaves, 7 steps):

$$-\frac{\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) x}{\left(a^2+b^2\right)^3}-\frac{(3 b B-a C) \operatorname{Log}[\operatorname{Sin}[c+d x]]}{a^4 d}+$$

$$\frac{b^2 \left(10 a^4 b B+9 a^2 b^3 B+3 b^5 B-6 a^5 C-3 a^3 b^2 C-a b^4 C\right) \operatorname{Log}[a \operatorname{Cos}[c+d x]+b \operatorname{Sin}[c+d x]]}{a^4 \left(a^2+b^2\right)^3 d}-$$

$$\frac{b \left(2 a^2 B+3 b^2 B-a b C\right)}{2 a^2 \left(a^2+b^2\right) d (a+b \operatorname{Tan}[c+d x])^2}-\frac{B \operatorname{Cot}[c+d x]}{a d (a+b \operatorname{Tan}[c+d x])^2}-\frac{b \left(a^4 B+6 a^2 b^2 B+3 b^4 B-3 a^3 b C-a b^3 C\right)}{a^3 \left(a^2+b^2\right)^2 d (a+b \operatorname{Tan}[c+d x])}$$

Result (type 3, 1150 leaves):

$$\frac{b^4 (-b B+a C) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])}{2 a^2 (a-i b)^2 (a+i b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])}-$$
$$\left(\left(a^3 B-3 a b^2 B+3 a^2 b C-b^3 C\right) (c+d x) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) /$$
$$\left((a-i b)^3 (a+i b)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+$$
$$\left(\left(10 i a^{15} b^3 B+10 a^{14} b^4 B+29 i a^{13} b^5 B+29 a^{12} b^6 B+31 i a^{11} b^7 B+31 a^{10} b^8 B+15 i a^9 b^9 B+15 a^8 b^{10} B+3 i a^7 b^{11} B+3 a^6 b^{12} B-6 i a^{16} b^2 C-\right.\right.$$
$$\left.6 a^{15} b^3 C-15 i a^{14} b^4 C-15 a^{13} b^5 C-13 i a^{12} b^6 C-13 a^{11} b^7 C-5 i a^{10} b^8 C-5 a^9 b^9 C-i a^8 b^{10} C-a^7 b^{11} C\right) (c+d x) (C+B \text{Cot}[c+d x])$$
$$\left.\text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) / \left(a^{10} (a-i b)^6 (a+i b)^5 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\left(i \left(10 a^4 b^3 B+9 a^2 b^5 B+3 b^7 B-6 a^5 b^2 C-3 a^3 b^4 C-a b^6 C\right) \text{ArcTan}[\text{Tan}[c+d x]] (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2\right.$$
$$\left.(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) / \left(a^4 \left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)-$$
$$\frac{B \text{Cot}[c+d x] (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}{a^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])}+$$
$$\frac{(-3 b B+a C) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 \text{Log}[\text{Sin}[c+d x]] (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3}{a^4 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])}+$$
$$\left(\left(10 a^4 b^3 B+9 a^2 b^5 B+3 b^7 B-6 a^5 b^2 C-3 a^3 b^4 C-a b^6 C\right) (C+B \text{Cot}[c+d x]) \text{Csc}[c+d x]^2 \text{Log}\left[(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2\right]\right.$$
$$\left.(a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^3\right) / \left(2 a^4 \left(a^2+b^2\right)^3 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)+\left((C+B \text{Cot}[c+d x])\right.$$
$$\left.\text{Csc}[c+d x]^2 (a \text{Cos}[c+d x]+b \text{Sin}[c+d x])^2 \left(5 a^2 b^4 B \text{Sin}[c+d x]+2 b^6 B \text{Sin}[c+d x]-4 a^3 b^3 C \text{Sin}[c+d x]-a b^5 C \text{Sin}[c+d x]\right)\right) /$$
$$\left(a^4 (a-i b)^2 (a+i b)^2 d (b+a \text{Cot}[c+d x])^3 (B \text{Cos}[c+d x]+C \text{Sin}[c+d x])\right)$$

- **Problem 49: Unable to integrate problem.**

$$\int \frac{\text{Tan}[c+d x]^m \left(A+B \text{Tan}[c+d x]+C \text{Tan}[c+d x]^2\right)}{\sqrt{a+b \text{Tan}[c+d x]}} \, dx$$

Optimal (type 6, 328 leaves, 13 steps):

$$-\frac{1}{b \left(a-\sqrt{-b^2}\right) d}\left(b B+\sqrt{-b^2} (A-C)\right) \text{AppellF1}\left[\frac{1}{2}, 1, -m, \frac{3}{2}, \frac{a+b \text{Tan}[c+d x]}{a-\sqrt{-b^2}}, 1+\frac{b \text{Tan}[c+d x]}{a}\right]$$
$$\text{Tan}[c+d x]^m \left(-\frac{b \text{Tan}[c+d x]}{a}\right)^{-m} \sqrt{a+b \text{Tan}[c+d x]}-\frac{1}{b \left(a+\sqrt{-b^2}\right) d}$$
$$\left(b B-\sqrt{-b^2} (A-C)\right) \text{AppellF1}\left[\frac{1}{2}, 1, -m, \frac{3}{2}, \frac{a+b \text{Tan}[c+d x]}{a+\sqrt{-b^2}}, 1+\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^m \left(-\frac{b \text{Tan}[c+d x]}{a}\right)^{-m} \sqrt{a+b \text{Tan}[c+d x]}+$$
$$\frac{2 C \text{Hypergeometric2F1}\left[\frac{1}{2}, -m, \frac{3}{2}, 1+\frac{b \text{Tan}[c+d x]}{a}\right] \text{Tan}[c+d x]^m \left(-\frac{b \text{Tan}[c+d x]}{a}\right)^{-m} \sqrt{a+b \text{Tan}[c+d x]}}{b d}$$

Result (type 8, 45 leaves):

$$\int \frac{\text{Tan}[c+d\,x]^m\,\left(A+B\,\text{Tan}[c+d\,x]+C\,\text{Tan}[c+d\,x]^2\right)}{\sqrt{a+b\,\text{Tan}[c+d\,x]}}\,dx$$

- **Problem 50: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 353 leaves, 6 steps):

$$\left(a^3\,(A\,c-c\,C-B\,d)-3\,a\,b^2\,(A\,c-c\,C-B\,d)-3\,a^2\,b\,(B\,c+(A-C)\,d)+b^3\,(B\,c+(A-C)\,d)\right)\,x-\frac{1}{f}$$
$$\left(3\,a^2\,b\,(A\,c-c\,C-B\,d)-b^3\,(A\,c-c\,C-B\,d)+a^3\,(B\,c+(A-C)\,d)-3\,a\,b^2\,(B\,c+(A-C)\,d)\right)\,\text{Log}[\text{Cos}[e+f\,x]]+$$
$$\frac{b\,\left(2\,a\,b\,(A\,c-c\,C-B\,d)+a^2\,(B\,c+(A-C)\,d)-b^2\,(B\,c+(A-C)\,d)\right)\,\text{Tan}[e+f\,x]}{f}+\frac{(A\,b\,c+a\,B\,c-b\,c\,C+a\,A\,d-b\,B\,d-a\,C\,d)\,(a+b\,\text{Tan}[e+f\,x])^2}{2\,f}+$$
$$\frac{(B\,c+(A-C)\,d)\,(a+b\,\text{Tan}[e+f\,x])^3}{3\,f}-\frac{(a\,C\,d-5\,b\,(c\,C+B\,d))\,(a+b\,\text{Tan}[e+f\,x])^4}{20\,b^2\,f}+\frac{C\,d\,\text{Tan}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^4}{5\,b\,f}$$

Result (type 3, 1022 leaves):

$$\frac{\left(b^3\,c\,C+b^3\,B\,d+3\,a\,b^2\,C\,d\right)\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])}{4\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}+$$
$$\left(\left(A\,b^3\,c+3\,a\,b^2\,B\,c+3\,a^2\,b\,c\,C-2\,b^3\,c\,C+3\,a\,A\,b^2\,d+3\,a^2\,b\,B\,d-2\,b^3\,B\,d+a^3\,C\,d-6\,a\,b^2\,C\,d\right)\,\text{Cos}[e+f\,x]^2\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/$$
$$\left(2\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)+$$
$$\left(\left(a^3\,A\,c-3\,a\,A\,b^2\,c-3\,a^2\,b\,B\,c+b^3\,B\,c-a^3\,c\,C+3\,a\,b^2\,c\,C-3\,a^2\,A\,b\,d+A\,b^3\,d-a^3\,B\,d+3\,a\,b^2\,B\,d+3\,a^2\,b\,C\,d-b^3\,C\,d\right)\,(e+f\,x)\right.$$
$$\left.\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)+$$
$$\left(\left(-3\,a^2\,A\,b\,c+A\,b^3\,c-a^3\,B\,c+3\,a\,b^2\,B\,c+3\,a^2\,b\,c\,C-b^3\,c\,C-a^3\,A\,d+3\,a\,A\,b^2\,d+3\,a^2\,b\,B\,d-b^3\,B\,d+a^3\,C\,d-3\,a\,b^2\,C\,d\right)\,\text{Cos}[e+f\,x]^4\right.$$
$$\left.\text{Log}[\text{Cos}[e+f\,x]]\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)+$$
$$\left(\text{Cos}[e+f\,x]\,\left(5\,b^3\,B\,c\,\text{Sin}[e+f\,x]+15\,a\,b^2\,c\,C\,\text{Sin}[e+f\,x]+5\,A\,b^3\,d\,\text{Sin}[e+f\,x]+15\,a\,b^2\,B\,d\,\text{Sin}[e+f\,x]+\right.\right.$$
$$\left.\left.15\,a^2\,b\,C\,d\,\text{Sin}[e+f\,x]-11\,b^3\,C\,d\,\text{Sin}[e+f\,x]\right)\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)\Big/$$
$$\left(15\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)+\frac{1}{15\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$
$$\text{Cos}[e+f\,x]^3\,\left(45\,a\,A\,b^2\,c\,\text{Sin}[e+f\,x]+45\,a^2\,b\,B\,c\,\text{Sin}[e+f\,x]-20\,b^3\,B\,c\,\text{Sin}[e+f\,x]+15\,a^3\,c\,C\,\text{Sin}[e+f\,x]-60\,a\,b^2\,c\,C\,\text{Sin}[e+f\,x]+\right.$$
$$\left.45\,a^2\,A\,b\,d\,\text{Sin}[e+f\,x]-20\,A\,b^3\,d\,\text{Sin}[e+f\,x]+15\,a^3\,B\,d\,\text{Sin}[e+f\,x]-60\,a\,b^2\,B\,d\,\text{Sin}[e+f\,x]-60\,a^2\,b\,C\,d\,\text{Sin}[e+f\,x]+23\,b^3\,C\,d\,\text{Sin}[e+f\,x]\right)$$
$$(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])+\frac{b^3\,C\,d\,\text{Tan}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])}{5\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$

- **Problem 51: Result more than twice size of optimal antiderivative.**

$$\int (a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 248 leaves, 5 steps):

$$\left(a^2 (A c - c C - B d) - b^2 (A c - c C - B d) - 2 a b (B c + (A - C) d)\right) x - \frac{\left(2 a b (A c - c C - B d) + a^2 (B c + (A - C) d) - b^2 (B c + (A - C) d)\right) \text{Log}[\text{Cos}[e + f x]]}{f} + \frac{b (A b c + a B c - b c C + a A d - b B d - a C d) \text{Tan}[e + f x]}{f} + \frac{(B c + (A - C) d) (a + b \text{Tan}[e + f x])^2}{2 f} - \frac{(a C d - 4 b (c C + B d)) (a + b \text{Tan}[e + f x])^3}{12 b^2 f} + \frac{C d \text{Tan}[e + f x] (a + b \text{Tan}[e + f x])^3}{4 b f}$$

Result (type 3, 1033 leaves) :

$$\left(\left(-2 a A b c - a^2 B c + b^2 B c + 2 a b c C - a^2 A d + A b^2 d + 2 a b B d + a^2 C d - b^2 C d\right) \text{Cos}[e + f x]^3 \text{Log}[\text{Cos}[e + f x]] (a + b \text{Tan}[e + f x])^2 (c + d \text{Tan}[e + f x])\right) \Big/ \left(f (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2 (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])\right) + \frac{1}{24 f (a \text{Cos}[e + f x] + b \text{Sin}[e + f x])^2 (c \text{Cos}[e + f x] + d \text{Sin}[e + f x])} \text{Sec}[e + f x] \left(6 b^2 B c + 12 a b c C + 6 A b^2 d + 12 a b B d + 6 a^2 C d - 6 b^2 C d + 9 a^2 A c (e + f x) - 9 A b^2 c (e + f x) - 18 a b B c (e + f x) - 9 a^2 c C (e + f x) + 9 b^2 c C (e + f x) - 18 a A b d (e + f x) - 9 a^2 B d (e + f x) + 9 b^2 B d (e + f x) + 18 a b C d (e + f x) + 6 b^2 B c \text{Cos}[2 (e + f x)] + 12 a b c C \text{Cos}[2 (e + f x)] + 6 A b^2 d \text{Cos}[2 (e + f x)] + 12 a b B d \text{Cos}[2 (e + f x)] + 6 a^2 C d \text{Cos}[2 (e + f x)] - 12 b^2 C d \text{Cos}[2 (e + f x)] + 12 a^2 A c (e + f x) \text{Cos}[2 (e + f x)] - 12 A b^2 c (e + f x) \text{Cos}[2 (e + f x)] - 24 a b B c (e + f x) \text{Cos}[2 (e + f x)] - 12 a^2 c C (e + f x) \text{Cos}[2 (e + f x)] + 12 b^2 c C (e + f x) \text{Cos}[2 (e + f x)] - 24 a A b d (e + f x) \text{Cos}[2 (e + f x)] - 12 a^2 B d (e + f x) \text{Cos}[2 (e + f x)] + 12 b^2 B d (e + f x) \text{Cos}[2 (e + f x)] + 24 a b C d (e + f x) \text{Cos}[2 (e + f x)] + 3 a^2 A c (e + f x) \text{Cos}[4 (e + f x)] - 3 A b^2 c (e + f x) \text{Cos}[4 (e + f x)] - 6 a b B c (e + f x) \text{Cos}[4 (e + f x)] - 3 a^2 c C (e + f x) \text{Cos}[4 (e + f x)] + 3 b^2 c C (e + f x) \text{Cos}[4 (e + f x)] - 6 a A b d (e + f x) \text{Cos}[4 (e + f x)] - 3 a^2 B d (e + f x) \text{Cos}[4 (e + f x)] + 3 b^2 B d (e + f x) \text{Cos}[4 (e + f x)] + 6 a b C d (e + f x) \text{Cos}[4 (e + f x)] + 6 A b^2 c \text{Sin}[2 (e + f x)] + 12 a b B c \text{Sin}[2 (e + f x)] + 6 a^2 c C \text{Sin}[2 (e + f x)] - 4 b^2 c C \text{Sin}[2 (e + f x)] + 12 a A b d \text{Sin}[2 (e + f x)] + 6 a^2 B d \text{Sin}[2 (e + f x)] - 4 b^2 B d \text{Sin}[2 (e + f x)] - 8 a b C d \text{Sin}[2 (e + f x)] + 3 A b^2 c \text{Sin}[4 (e + f x)] + 6 a b B c \text{Sin}[4 (e + f x)] + 3 a^2 c C \text{Sin}[4 (e + f x)] - 4 b^2 c C \text{Sin}[4 (e + f x)] + 6 a A b d \text{Sin}[4 (e + f x)] + 3 a^2 B d \text{Sin}[4 (e + f x)] - 4 b^2 B d \text{Sin}[4 (e + f x)] - 8 a b C d \text{Sin}[4 (e + f x)]\right) (a + b \text{Tan}[e + f x])^2 (c + d \text{Tan}[e + f x])$$

- **Problem 54: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c + d \text{Tan}[e + f x]) \left(A + B \text{Tan}[e + f x] + C \text{Tan}[e + f x]^2\right)}{a + b \text{Tan}[e + f x]} \, dx$$

Optimal (type 3, 156 leaves, 5 steps) :

$$\frac{(a (A c - c C - B d) + b (B c + (A - C) d)) x}{a^2 + b^2} + \frac{(A b c - a B c - b c C - a A d - b B d + a C d) \text{Log}[\text{Cos}[e + f x]]}{\left(a^2 + b^2\right) f} + \frac{\left(A b^2 - a (b B - a C)\right) (b c - a d) \text{Log}[a + b \text{Tan}[e + f x]]}{b^2 \left(a^2 + b^2\right) f} + \frac{C d \text{Tan}[e + f x]}{b f}$$

Result (type 3, 384 leaves) :

$$\Big((a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])\,(c+d\,\mathrm{Tan}[e+f x])\Big(a A b^2 c e+b^3 B c e-a b^2 c C e+A b^3 d e-a b^2 B d e-b^3 C d e+a A b^2 c f x+b^3 B c f x-a b^2 c C f x+A b^3 d f x-a b^2 B d f x-b^3 C d f x+\left(a^2+b^2\right)(a C d-b(c C+B d))\,\mathrm{Log}[\mathrm{Cos}[e+f x]]+A b^3 c\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]-a b^2 B c\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]+a^2 b c C\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]-a A b^2 d\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]+a^2 b B d\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]-a^3 C d\,\mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]+b\left(a^2+b^2\right) C d\,\mathrm{Tan}[e+f x]\Big)\Big)\Big/\Big((a-\mathrm{i}\,b)(a+\mathrm{i}\,b)\,b^2 f\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\,(a+b\,\mathrm{Tan}[e+f x])\Big)$$

- **Problem 55: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(c+d\,\mathrm{Tan}[e+f x])\left(A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2\right)}{(a+b\,\mathrm{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 265 leaves, 5 steps) :

$$\frac{\left(a^2(A c-c C-B d)-b^2(A c-c C-B d)+2 a b(B c+(A-C) d)\right) x}{\left(a^2+b^2\right)^2}+\frac{\left(2 a b(A c-c C-B d)-a^2(B c+(A-C) d)+b^2(B c+(A-C) d)\right)\mathrm{Log}[\mathrm{Cos}[e+f x]]}{\left(a^2+b^2\right)^2 f}+\frac{\left(a^4 C d+b^4(B c+A d)+2 a b^3(A c-c C-B d)-a^2 b^2(B c+(A-3 C) d)\right)\mathrm{Log}[a+b\,\mathrm{Tan}[e+f x]]}{b^2\left(a^2+b^2\right)^2 f}-\frac{\left(A b^2-a(b B-a C)\right)(b c-a d)}{b^2\left(a^2+b^2\right) f\,(a+b\,\mathrm{Tan}[e+f x])}$$

Result (type 3, 1437 leaves) :

$$-\Big(\Big(i\,\big(-2 a^6 A b^4 c+2 i a^5 A b^5 c-2 a^4 A b^6 c+2 i a^3 A b^7 c+a^7 b^3 B c-i a^6 b^4 B c-a^3 b^7 B c+i a^2 b^8 B c+2 a^6 b^4 c C-2 i a^5 b^5 c C+2 a^4 b^6 c C-$$
$$2 i a^3 b^7 c C+a^7 A b^3 d-i a^6 A b^4 d-a^3 A b^7 d+i a^2 A b^8 d+2 a^6 b^4 B d-2 i a^5 b^5 B d+2 a^4 b^6 B d-2 i a^3 b^7 B d-a^9 b C d+i a^8 b^2 C d-$$
$$4 a^7 b^3 C d+4 i a^6 b^4 C d-3 a^5 b^5 C d+3 i a^4 b^6 C d\big)\,(e+f x)\,\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(a^2\,(a-i b)^4\,(a+i b)^3\,b^3\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big)-$$
$$\Big(i\,\big(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-a^2 A b^2 d+A b^4 d-2 a b^3 B d+a^4 C d+3 a^2 b^2 C d\big)\,\text{ArcTan}[\text{Tan}[e+f x]]$$
$$\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(b^2\,\big(a^2+b^2\big)^2\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2\Big)-$$
$$\frac{C\,d\,\text{Log}[\text{Cos}[e+f x]]\,\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])}{b^2\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2}+$$
$$\Big(\big(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-a^2 A b^2 d+A b^4 d-2 a b^3 B d+a^4 C d+3 a^2 b^2 C d\big)$$
$$\text{Log}\big[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\big]\,\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(2 b^2\,\big(a^2+b^2\big)^2\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big(\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,\big(a^4 A b c\,(e+f x)\,\text{Cos}[e+f x]-a^2 A b^3 c\,(e+f x)\,\text{Cos}[e+f x]+2 a^3 b^2 B c\,(e+f x)\,\text{Cos}[e+f x]-$$
$$a^4 b c C\,(e+f x)\,\text{Cos}[e+f x]+a^2 b^3 c C\,(e+f x)\,\text{Cos}[e+f x]+2 a^3 A b^2 d\,(e+f x)\,\text{Cos}[e+f x]-a^4 b B d\,(e+f x)\,\text{Cos}[e+f x]+$$
$$a^2 b^3 B d\,(e+f x)\,\text{Cos}[e+f x]-2 a^3 b^2 C d\,(e+f x)\,\text{Cos}[e+f x]+a^2 A b^3 c\,\text{Sin}[e+f x]+A b^5 c\,\text{Sin}[e+f x]-a^3 b^2 B c\,\text{Sin}[e+f x]-$$
$$a b^4 B c\,\text{Sin}[e+f x]+a^4 b c C\,\text{Sin}[e+f x]+a^2 b^3 c C\,\text{Sin}[e+f x]-a^3 A b^2 d\,\text{Sin}[e+f x]-a A b^4 d\,\text{Sin}[e+f x]+a^4 b B d\,\text{Sin}[e+f x]+$$
$$a^2 b^3 B d\,\text{Sin}[e+f x]-a^5 C d\,\text{Sin}[e+f x]-a^3 b^2 C d\,\text{Sin}[e+f x]+a^3 A b^2 c\,(e+f x)\,\text{Sin}[e+f x]-a A b^4 c\,(e+f x)\,\text{Sin}[e+f x]+$$
$$2 a^2 b^3 B c\,(e+f x)\,\text{Sin}[e+f x]-a^3 b^2 c C\,(e+f x)\,\text{Sin}[e+f x]+a b^4 c C\,(e+f x)\,\text{Sin}[e+f x]+2 a^2 A b^3 d\,(e+f x)\,\text{Sin}[e+f x]-$$
$$a^3 b^2 B d\,(e+f x)\,\text{Sin}[e+f x]+a b^4 B d\,(e+f x)\,\text{Sin}[e+f x]-2 a^2 b^3 C d\,(e+f x)\,\text{Sin}[e+f x]\big)\,(c+d\,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(a\,(a-i b)^2\,(a+i b)^2\,b\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2\Big)$$

- **Problem 56: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d\,\text{Tan}[e+f x])\,\big(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\big)}{(a+b\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 320 leaves, 4 steps):

$$\frac{\big(a^3\,(A c-c C-B d)-3 a b^2\,(A c-c C-B d)+3 a^2 b\,(B c+(A-C)\,d)-b^3\,(B c+(A-C)\,d)\big)\,x}{\big(a^2+b^2\big)^3}+\frac{1}{\big(a^2+b^2\big)^3 f}$$
$$\big(3 a^2 b\,(A c-c C-B d)-b^3\,(A c-c C-B d)-a^3\,(B c+(A-C)\,d)+3 a b^2\,(B c+(A-C)\,d)\big)\,\text{Log}[a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x]]-$$
$$\frac{\big(A b^2-a\,(b B-a C)\big)\,(b c-a d)}{2 b^2\,\big(a^2+b^2\big)\,f\,(a+b\,\text{Tan}[e+f x])^2}-\frac{a^4 C d+b^4\,(B c+A d)+2 a b^3\,(A c-c C-B d)-a^2 b^2\,(B c+(A-3 C)\,d)}{b^2\,\big(a^2+b^2\big)^2\,f\,(a+b\,\text{Tan}[e+f x])}$$

Result (type 3, 2622 leaves):

$$\left(\left(3\,i\,a^9 A b c+3 a^8 A b^2 c+5\,i\,a^7 A b^3 c+5 a^6 A b^4 c+i\,a^5 A b^5 c+a^4 A b^6 c-i\,a^3 A b^7 c-a^2 A b^8 c-i\,a^{10} B c-a^9 b B c+i\,a^8 b^2 B c+a^7 b^3 B c+\right.\right.$$
$$5\,i\,a^6 b^4 B c+5 a^5 b^5 B c+3\,i\,a^4 b^6 B c+3 a^3 b^7 B c-3\,i\,a^9 b c C-3 a^8 b^2 c C-5\,i\,a^7 b^3 c C-5 a^6 b^4 c C-i\,a^5 b^5 c C-a^4 b^6 c C+$$
$$i\,a^3 b^7 c C+a^2 b^8 c C-i\,a^{10} A d-a^9 A b d+i\,a^8 A b^2 d+a^7 A b^3 d+5\,i\,a^6 A b^4 d+5 a^5 A b^5 d+3\,i\,a^4 A b^6 d+3 a^3 A b^7 d-3\,i\,a^9 b B d-$$
$$3 a^8 b^2 B d-5\,i\,a^7 b^3 B d-5 a^6 b^4 B d-i\,a^5 b^5 B d-a^4 b^6 B d+i\,a^3 b^7 B d+a^2 b^8 B d+i\,a^{10} C d+a^9 b C d-i\,a^8 b^2 C d-a^7 b^3 C d-$$
$$\left.\left.5\,i\,a^6 b^4 C d-5 a^5 b^5 C d-3\,i\,a^4 b^6 C d-3 a^3 b^7 C d\right)(e+f x)\,\text{Sec}[e+f x]^2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])\right)\Big/$$
$$\left(a^2 (a-i\,b)^6 (a+i\,b)^5 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^3\right)-$$
$$\left(i\left(3 a^2 A b c-A b^3 c-a^3 B c+3 a b^2 B c-3 a^2 b c C+b^3 c C-a^3 A d+3 a A b^2 d-3 a^2 b B d+b^3 B d+a^3 C d-3 a b^2 C d\right)\right.$$
$$\left.\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])\right)\Big/$$
$$\left(\left(a^2+b^2\right)^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^3\right)+$$
$$\left(\left(3 a^2 A b c-A b^3 c-a^3 B c+3 a b^2 B c-3 a^2 b c C+b^3 c C-a^3 A d+3 a A b^2 d-3 a^2 b B d+b^3 B d+a^3 C d-3 a b^2 C d\right)\right.$$
$$\left.\text{Log}\left[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])\right)\Big/$$
$$\left(2\left(a^2+b^2\right)^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^3\right)+$$
$$\left(\text{Sec}[e+f x]^2\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\left(2 a^3 A b^3 c+2 a A b^5 c-a^4 b^2 B c+b^6 B c-2 a^3 b^3 c C-2 a b^5 c C-a^4 A b^2 d+A b^6 d-\right.\right.$$
$$2 a^3 b^3 B d-2 a b^5 B d+a^6 C d+4 a^4 b^2 C d+3 a^2 b^4 C d+a^6 A c (e+f x)-2 a^4 A b^2 c (e+f x)-3 a^2 A b^4 c (e+f x)+3 a^5 b B c (e+f x)+$$
$$2 a^3 b^3 B c (e+f x)-a b^5 B c (e+f x)-a^6 c C (e+f x)+2 a^4 b^2 c C (e+f x)+3 a^2 b^4 c C (e+f x)+3 a^5 A b d (e+f x)+2 a^3 A b^3 d (e+f x)-$$
$$a A b^5 d (e+f x)-a^6 B d (e+f x)+2 a^4 b^2 B d (e+f x)+3 a^2 b^4 B d (e+f x)-3 a^5 b C d (e+f x)-2 a^3 b^3 C d (e+f x)+$$
$$a b^5 C d (e+f x)-3 a^3 A b^3 c\,\text{Cos}[2 (e+f x)]-3 a A b^5 c\,\text{Cos}[2 (e+f x)]+2 a^4 b^2 B c\,\text{Cos}[2 (e+f x)]+a^2 b^4 B c\,\text{Cos}[2 (e+f x)]-$$
$$b^6 B c\,\text{Cos}[2 (e+f x)]-a^5 b c C\,\text{Cos}[2 (e+f x)]+a^3 b^3 c C\,\text{Cos}[2 (e+f x)]+2 a b^5 c C\,\text{Cos}[2 (e+f x)]+2 a^4 A b^2 d\,\text{Cos}[2 (e+f x)]+$$
$$a^2 A b^4 d\,\text{Cos}[2 (e+f x)]-A b^6 d\,\text{Cos}[2 (e+f x)]-a^5 b B d\,\text{Cos}[2 (e+f x)]+a^3 b^3 B d\,\text{Cos}[2 (e+f x)]+2 a b^5 B d\,\text{Cos}[2 (e+f x)]-$$
$$3 a^4 b^2 C d\,\text{Cos}[2 (e+f x)]-3 a^2 b^4 C d\,\text{Cos}[2 (e+f x)]+a^6 A c (e+f x)\,\text{Cos}[2 (e+f x)]-4 a^4 A b^2 c (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$3 a^2 A b^4 c (e+f x)\,\text{Cos}[2 (e+f x)]+3 a^5 b B c (e+f x)\,\text{Cos}[2 (e+f x)]-4 a^3 b^3 B c (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$a b^5 B c (e+f x)\,\text{Cos}[2 (e+f x)]-a^6 c C (e+f x)\,\text{Cos}[2 (e+f x)]+4 a^4 b^2 c C (e+f x)\,\text{Cos}[2 (e+f x)]-3 a^2 b^4 c C (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$3 a^5 A b d (e+f x)\,\text{Cos}[2 (e+f x)]-4 a^3 A b^3 d (e+f x)\,\text{Cos}[2 (e+f x)]+a A b^5 d (e+f x)\,\text{Cos}[2 (e+f x)]-a^6 B d (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$4 a^4 b^2 B d (e+f x)\,\text{Cos}[2 (e+f x)]-3 a^2 b^4 B d (e+f x)\,\text{Cos}[2 (e+f x)]-3 a^5 b C d (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$4 a^3 b^3 C d (e+f x)\,\text{Cos}[2 (e+f x)]-a b^5 C d (e+f x)\,\text{Cos}[2 (e+f x)]+3 a^4 A b^2 c\,\text{Sin}[2 (e+f x)]+3 a^2 A b^4 c\,\text{Sin}[2 (e+f x)]-$$
$$2 a^5 b B c\,\text{Sin}[2 (e+f x)]-a^3 b^3 B c\,\text{Sin}[2 (e+f x)]+a b^5 B c\,\text{Sin}[2 (e+f x)]+a^6 c C\,\text{Sin}[2 (e+f x)]-a^4 b^2 c C\,\text{Sin}[2 (e+f x)]-$$
$$2 a^2 b^4 c C\,\text{Sin}[2 (e+f x)]-2 a^5 A b d\,\text{Sin}[2 (e+f x)]-a^3 A b^3 d\,\text{Sin}[2 (e+f x)]+a A b^5 d\,\text{Sin}[2 (e+f x)]+a^6 B d\,\text{Sin}[2 (e+f x)]-$$
$$a^4 b^2 B d\,\text{Sin}[2 (e+f x)]-2 a^2 b^4 B d\,\text{Sin}[2 (e+f x)]+3 a^5 b C d\,\text{Sin}[2 (e+f x)]+3 a^3 b^3 C d\,\text{Sin}[2 (e+f x)]+$$
$$2 a^5 A b c (e+f x)\,\text{Sin}[2 (e+f x)]-6 a^3 A b^3 c (e+f x)\,\text{Sin}[2 (e+f x)]+6 a^4 b^2 B c (e+f x)\,\text{Sin}[2 (e+f x)]-$$
$$2 a^2 b^4 B c (e+f x)\,\text{Sin}[2 (e+f x)]-2 a^5 b c C (e+f x)\,\text{Sin}[2 (e+f x)]+6 a^3 b^3 c C (e+f x)\,\text{Sin}[2 (e+f x)]+$$
$$6 a^4 A b^2 d (e+f x)\,\text{Sin}[2 (e+f x)]-2 a^2 A b^4 d (e+f x)\,\text{Sin}[2 (e+f x)]-2 a^5 b B d (e+f x)\,\text{Sin}[2 (e+f x)]+$$
$$\left.\left.6 a^3 b^3 B d (e+f x)\,\text{Sin}[2 (e+f x)]-6 a^4 b^2 C d (e+f x)\,\text{Sin}[2 (e+f x)]+2 a^2 b^4 C d (e+f x)\,\text{Sin}[2 (e+f x)]\right)(c+d\,\text{Tan}[e+f x])\right)\Big/$$
$$\left(2 a (a-i\,b)^3 (a+i\,b)^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^3\right)$$

■ Problem 57: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)dx$$

Optimal (type 3, 661 leaves, 7 steps) :

$$-\left(a^3\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-3 a b^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+3 a^2 b\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)-b^3\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) x+\frac{1}{f}\left(3 a^2 b\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^3\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-a^3\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)+3 a b^2\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]+\frac{d\left(3 a^2 b(A c-c C-B d)-b^3(A c-c C-B d)+a^3(B c+(A-C) d)-3 a b^2(B c+(A-C) d)\right) \text{Tan}[e+f x]}{f}+\frac{\left(a^3 B-3 a b^2 B+3 a^2 b(A-C)-b^3(A-C)\right)(c+d \text{Tan}[e+f x])^2}{2 f}+\frac{1}{60 d^4 f}\left(4 a^3 C d^3-3 a^2 b d^2(3 c C-16 B d)+3 a b^2 d\left(2 c^2 C-5 B c d+20(A-C) d^2\right)-b^3\left(c^3 C-2 B c^2 d+5 c(A-C) d^2+20 B d^3\right)\right)(c+d \text{Tan}[e+f x])^3+\frac{b\left(5 b(A b+a B-b C) d^2+(b c-a d)(b c C-2 b B d-a C d)\right) \text{Tan}[e+f x](c+d \text{Tan}[e+f x])^3}{20 d^3 f}-\frac{(b c C-2 b B d-a C d)(a+b \text{Tan}[e+f x])^2(c+d \text{Tan}[e+f x])^3}{10 d^2 f}+\frac{C(a+b \text{Tan}[e+f x])^3(c+d \text{Tan}[e+f x])^3}{6 d f}$$

Result (type 3, 1616 leaves) :

$$\left(\left(b^3 c^2 C+2 b^3 B c d+6 a b^2 c C d+A b^3 d^2+3 a b^2 B d^2+3 a^2 b C d^2-3 b^3 C d^2\right) \text{Cos}[e+f x] (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(4 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+$$
$$\left(\left(A b^3 c^2+3 a b^2 B c^2+3 a^2 b c^2 C-2 b^3 c^2 C+6 a A b^2 c d+6 a^2 b B c d-4 b^3 B c d+2 a^3 c C d-12 a b^2 c C d+3 a^2 A b d^2-\right.\right.$$
$$\left.\left.2 A b^3 d^2+a^3 B d^2-6 a b^2 B d^2-6 a^2 b C d^2+3 b^3 C d^2\right) \text{Cos}[e+f x]^3 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(2 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+$$
$$\left(\left(a^3 A c^2-3 a A b^2 c^2-3 a^2 b B c^2+b^3 B c^2-a^3 c^2 C+3 a b^2 c^2 C-6 a^2 A b c d+2 A b^3 c d-2 a^3 B c d+6 a b^2 B c d+6 a^2 b c C d-2 b^3 c C d-\right.\right.$$
$$\left.\left.a^3 A d^2+3 a A b^2 d^2+3 a^2 b B d^2-b^3 B d^2+a^3 C d^2-3 a b^2 C d^2\right) (e+f x) \text{Cos}[e+f x]^5 (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+$$
$$\left(\left(-3 a^2 A b c^2+A b^3 c^2-a^3 B c^2+3 a b^2 B c^2+3 a^2 b c^2 C-b^3 c^2 C-2 a^3 A c d+6 a A b^2 c d+6 a^2 b B c d-2 b^3 B c d+2 a^3 c C d-6 a b^2 c C d+\right.\right.$$
$$\left.\left.3 a^2 A b d^2-A b^3 d^2+a^3 B d^2-3 a b^2 B d^2-3 a^2 b C d^2+b^3 C d^2\right) \text{Cos}[e+f x]^5 \text{Log}[\text{Cos}[e+f x]] (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\frac{b^3 C d^2 \text{Sec}[e+f x] (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2}{6 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}+$$
$$\frac{1}{15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}$$
$$\text{Cos}[e+f x]^2 \left(5 b^3 B c^2 \text{Sin}[e+f x]+15 a b^2 c^2 C \text{Sin}[e+f x]+10 A b^3 c d \text{Sin}[e+f x]+30 a b^2 B c d \text{Sin}[e+f x]+\right.$$
$$30 a^2 b c C d \text{Sin}[e+f x]-22 b^3 c C d \text{Sin}[e+f x]+15 a A b^2 d^2 \text{Sin}[e+f x]+15 a^2 b B d^2 \text{Sin}[e+f x]-$$
$$\left.11 b^3 B d^2 \text{Sin}[e+f x]+5 a^3 C d^2 \text{Sin}[e+f x]-33 a b^2 C d^2 \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2+$$
$$\left(\left(2 b^3 c C d \text{Sin}[e+f x]+b^3 B d^2 \text{Sin}[e+f x]+3 a b^2 C d^2 \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(5 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+$$
$$\frac{1}{15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}$$
$$\text{Cos}[e+f x]^4 \left(45 a A b^2 c^2 \text{Sin}[e+f x]+45 a^2 b B c^2 \text{Sin}[e+f x]-20 b^3 B c^2 \text{Sin}[e+f x]+15 a^3 c^2 C \text{Sin}[e+f x]-\right.$$
$$60 a b^2 c^2 C \text{Sin}[e+f x]+90 a^2 A b c d \text{Sin}[e+f x]-40 A b^3 c d \text{Sin}[e+f x]+30 a^3 B c d \text{Sin}[e+f x]-120 a b^2 B c d \text{Sin}[e+f x]-$$
$$120 a^2 b c C d \text{Sin}[e+f x]+46 b^3 c C d \text{Sin}[e+f x]+15 a^3 A d^2 \text{Sin}[e+f x]-60 a A b^2 d^2 \text{Sin}[e+f x]-60 a^2 b B d^2 \text{Sin}[e+f x]+$$
$$\left.23 b^3 B d^2 \text{Sin}[e+f x]-20 a^3 C d^2 \text{Sin}[e+f x]+69 a b^2 C d^2 \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2$$

- **Problem 58: Result more than twice size of optimal antiderivative.**

$$\int (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 443 leaves, 6 steps) :

$$-\left(a^2 \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)-b^2 \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)+2 a b \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)\right) x+\frac{1}{f}\left(2 a b \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)-a^2 \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)+b^2 \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]+\frac{d \left(2 a b (A c-c C-B d)+a^2 (B c+(A-C) d)-b^2 (B c+(A-C) d)\right) \text{Tan}[e+f x]}{f}+\frac{\left(a^2 B-b^2 B+2 a b (A-C)\right) (c+d \text{Tan}[e+f x])^2}{2 f}+\frac{\left(8 a^2 C d^2-10 a b d (c C-4 B d)+b^2 \left(2 c^2 C-5 B c d+20 (A-C) d^2\right)\right) (c+d \text{Tan}[e+f x])^3}{60 d^3 f}-\frac{b (2 b c C-5 b B d-2 a C d) \text{Tan}[e+f x] (c+d \text{Tan}[e+f x])^3}{20 d^2 f}+\frac{C (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^3}{5 d f}$$

Result (type 3, 1158 leaves) :

$$\frac{\left(2 b^2 c C d+b^2 B d^2+2 a b C d^2\right) (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2}{4 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}+\left(\left(b^2 B c^2+2 a b c^2 C+2 A b^2 c d+4 a b B c d+2 a^2 c C d-4 b^2 c C d+2 a A b d^2+a^2 B d^2-2 b^2 B d^2-4 a b C d^2\right) \text{Cos}[e+f x]^2 (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)\Big/\left(2 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\left(\left(a^2 A c^2-A b^2 c^2-2 a b B c^2-a^2 c^2 C+b^2 c^2 C-4 a A b c d-2 a^2 B c d+2 b^2 B c d+4 a b c C d-a^2 A d^2+A b^2 d^2+2 a b B d^2+a^2 C d^2-b^2 C d^2\right) (e+f x) \text{Cos}[e+f x]^4 (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)\Big/\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\left(\left(-2 a A b c^2-a^2 B c^2+b^2 B c^2+2 a b c^2 C-2 a^2 A c d+2 A b^2 c d+4 a b B c d+2 a^2 c C d-2 b^2 c C d+2 a A b d^2+a^2 B d^2-b^2 B d^2-2 a b C d^2\right) \text{Cos}[e+f x]^4 \text{Log}[\text{Cos}[e+f x]] (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)\Big/\left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\left(\text{Cos}[e+f x] \left(5 b^2 c^2 C \text{Sin}[e+f x]+10 b^2 B c d \text{Sin}[e+f x]+20 a b c C d \text{Sin}[e+f x]+5 A b^2 d^2 \text{Sin}[e+f x]+10 a b B d^2 \text{Sin}[e+f x]+5 a^2 C d^2 \text{Sin}[e+f x]-11 b^2 C d^2 \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)\Big/\left(15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\frac{1}{15 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}\text{Cos}[e+f x]^3 \left(15 A b^2 c^2 \text{Sin}[e+f x]+30 a b B c^2 \text{Sin}[e+f x]+15 a^2 c^2 C \text{Sin}[e+f x]-20 b^2 c^2 C \text{Sin}[e+f x]+60 a A b c d \text{Sin}[e+f x]+30 a^2 B c d \text{Sin}[e+f x]-40 b^2 B c d \text{Sin}[e+f x]-80 a b c C d \text{Sin}[e+f x]+15 a^2 A d^2 \text{Sin}[e+f x]-20 A b^2 d^2 \text{Sin}[e+f x]-40 a b B d^2 \text{Sin}[e+f x]-20 a^2 C d^2 \text{Sin}[e+f x]+23 b^2 C d^2 \text{Sin}[e+f x]\right) (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2+\frac{b^2 C d^2 \text{Tan}[e+f x] (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2}{5 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}$$

- **Problem 59: Result more than twice size of optimal antiderivative.**

$$\int (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right) \, dx$$

Optimal (type 3, 266 leaves, 5 steps) :

$$-\left(a\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+b\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) x-\frac{\left(a\left(B c^2-2 c C d-B d^2\right)-b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d+b\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]}{f}+\frac{d (A b c+a B c-b c C+a A d-b B d-a C d) \text{Tan}[e+f x]}{f}+\frac{(A b+a B-b C) (c+d \text{Tan}[e+f x])^2}{2 f}-\frac{(b c C-4 b B d-4 a C d) (c+d \text{Tan}[e+f x])^3}{12 d^2 f}+\frac{b C \text{Tan}[e+f x] (c+d \text{Tan}[e+f x])^3}{4 d f}$$

Result (type 3, 1033 leaves) :

$$\left(\left(-A b c^2-a B c^2+b c^2 C-2 a A c d+2 b B c d+2 a c C d+A b d^2+a B d^2-b C d^2\right) \text{Cos}[e+f x]^3 \text{Log}[\text{Cos}[e+f x]] (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)+\frac{1}{24 f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2} \text{Sec}[e+f x] \left(6 b c^2 C+12 b B c d+12 a c C d+6 A b d^2+6 a B d^2-6 b C d^2+9 a A c^2 (e+f x)-9 b B c^2 (e+f x)-9 a c^2 C (e+f x)-18 A b c d (e+f x)-18 a B c d (e+f x)+18 b c C d (e+f x)-9 a A d^2 (e+f x)+9 b B d^2 (e+f x)+9 a C d^2 (e+f x)+6 b c^2 C \text{Cos}[2 (e+f x)]+12 b B c d \text{Cos}[2 (e+f x)]+12 a c C d \text{Cos}[2 (e+f x)]+6 A b d^2 \text{Cos}[2 (e+f x)]+6 a B d^2 \text{Cos}[2 (e+f x)]-12 b C d^2 \text{Cos}[2 (e+f x)]+12 a A c^2 (e+f x) \text{Cos}[2 (e+f x)]-12 b B c^2 (e+f x) \text{Cos}[2 (e+f x)]-12 a c^2 C (e+f x) \text{Cos}[2 (e+f x)]-24 A b c d (e+f x) \text{Cos}[2 (e+f x)]-24 a B c d (e+f x) \text{Cos}[2 (e+f x)]+24 b c C d (e+f x) \text{Cos}[2 (e+f x)]-12 a A d^2 (e+f x) \text{Cos}[2 (e+f x)]+12 b B d^2 (e+f x) \text{Cos}[2 (e+f x)]+12 a C d^2 (e+f x) \text{Cos}[2 (e+f x)]+3 a A c^2 (e+f x) \text{Cos}[4 (e+f x)]-3 b B c^2 (e+f x) \text{Cos}[4 (e+f x)]-3 a c^2 C (e+f x) \text{Cos}[4 (e+f x)]-6 A b c d (e+f x) \text{Cos}[4 (e+f x)]-6 a B c d (e+f x) \text{Cos}[4 (e+f x)]+6 b c C d (e+f x) \text{Cos}[4 (e+f x)]-3 a A d^2 (e+f x) \text{Cos}[4 (e+f x)]+3 b B d^2 (e+f x) \text{Cos}[4 (e+f x)]+3 a C d^2 (e+f x) \text{Cos}[4 (e+f x)]+6 b B c^2 \text{Sin}[2 (e+f x)]+6 a c^2 C \text{Sin}[2 (e+f x)]+12 A b c d \text{Sin}[2 (e+f x)]+12 a B c d \text{Sin}[2 (e+f x)]-8 b c C d \text{Sin}[2 (e+f x)]+6 a A d^2 \text{Sin}[2 (e+f x)]-4 b B d^2 \text{Sin}[2 (e+f x)]-4 a C d^2 \text{Sin}[2 (e+f x)]+3 b B c^2 \text{Sin}[4 (e+f x)]+3 a c^2 C \text{Sin}[4 (e+f x)]+6 A b c d \text{Sin}[4 (e+f x)]+6 a B c d \text{Sin}[4 (e+f x)]-8 b c C d \text{Sin}[4 (e+f x)]+3 a A d^2 \text{Sin}[4 (e+f x)]-4 b B d^2 \text{Sin}[4 (e+f x)]-4 a C d^2 \text{Sin}[4 (e+f x)]\right) (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])^2$$

- **Problem 61: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d \text{Tan}[e+f x])^2 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{a+b \text{Tan}[e+f x]} \, dx$$

Optimal (type 3, 254 leaves, 6 steps) :

$$-\frac{\left(a\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) x}{a^2+b^2}-\frac{\left(a\left(B c^2-2 c C d-B d^2\right)+b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d-b\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]}{\left(a^2+b^2\right) f}+\frac{\left(A b^2-a (b B-a C)\right) (b c-a d)^2 \text{Log}[a+b \text{Tan}[e+f x]]}{b^3\left(a^2+b^2\right) f}+\frac{d (b c C+b B d-a C d) \text{Tan}[e+f x]}{b^2 f}+\frac{C (c+d \text{Tan}[e+f x])^2}{2 b f}$$

Result (type 3, 663 leaves) :

$$\left(\left(a A c^2+b B c^2-a c^2 C+2 A b c d-2 a B c d-2 b c C d-a A d^2-b B d^2+a C d^2\right) (e+f x) \text{Cos}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c+d \text{Tan}[e+f x])^2\right) \Big/ \left((a-i b) (a+i b) f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])\right)+$$
$$\left(\left(-b^2 c^2 C-2 b^2 B c d+2 a b c C d-A b^2 d^2+a b B d^2-a^2 C d^2+b^2 C d^2\right) \text{Cos}[e+f x] \text{Log}[\text{Cos}[e+f x]] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c+d \text{Tan}[e+f x])^2\right) \Big/ \left(b^3 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])\right)+$$
$$\left(\left(A b^4 c^2-a b^3 B c^2+a^2 b^2 c^2 C-2 a A b^3 c d+2 a^2 b^2 B c d-2 a^3 b c C d+a^2 A b^2 d^2-a^3 b B d^2+a^4 C d^2\right) \text{Cos}[e+f x] \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c+d \text{Tan}[e+f x])^2\right) \Big/$$
$$\left(b^3 \left(a^2+b^2\right) f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])\right)+\frac{C d^2 \text{Sec}[e+f x] (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c+d \text{Tan}[e+f x])^2}{2 b f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])}+$$
$$\left((a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) \left(2 b c C d \text{Sin}[e+f x]+b B d^2 \text{Sin}[e+f x]-a C d^2 \text{Sin}[e+f x]\right) (c+d \text{Tan}[e+f x])^2\right) \Big/ \left(b^2 f (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])\right)$$

- **Problem 62: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d \text{Tan}[e+f x])^2 \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 415 leaves, 6 steps):

$$-\frac{1}{\left(a^2+b^2\right)^2}\left(a^2 \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)-b^2 \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)-2 a b \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)\right) x-\frac{1}{\left(a^2+b^2\right)^2 f}$$
$$\left(2 a b \left(c^2 C+2 B c d-C d^2-A \left(c^2-d^2\right)\right)+a^2 \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)-b^2 \left(2 c (A-C) d+B \left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]-$$
$$\frac{1}{b^3 \left(a^2+b^2\right)^2 f}(b c-a d) \left(a^3 b B d-2 a^4 C d-b^4 (B c+2 A d)-a b^3 (2 A c-2 c C-3 B d)+a^2 b^2 (B c-4 C d)\right) \text{Log}[a+b \text{Tan}[e+f x]]+$$
$$\frac{\left(A b^2-a b B+2 a^2 C+b^2 C\right) d^2 \text{Tan}[e+f x]}{b^2 \left(a^2+b^2\right) f}-\frac{\left(A b^2-a (b B-a C)\right) (c+d \text{Tan}[e+f x])^2}{b \left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])}$$

Result (type 3, 2640 leaves):

$$-\left(\left(\mathrm{i}\left(-2 a^6 A b^6 c^2+2 \mathrm{i} a^5 A b^7 c^2-2 a^4 A b^8 c^2+2 \mathrm{i} a^3 A b^9 c^2+a^7 b^5 B c^2-\mathrm{i} a^6 b^6 B c^2-a^3 b^9 B c^2+\mathrm{i} a^2 b^{10} B c^2+2 a^6 b^6 c^2 C-2 \mathrm{i} a^5 b^7 c^2 C+\right.\right.\right.$$
$$2 a^4 b^8 c^2 C-2 \mathrm{i} a^3 b^9 c^2 C+2 a^7 A b^5 c d-2 \mathrm{i} a^6 A b^6 c d-2 a^3 A b^9 c d+2 \mathrm{i} a^2 A b^{10} c d+4 a^6 b^6 B c d-4 \mathrm{i} a^5 b^7 B c d+4 a^4 b^8 B c d-$$
$$4 \mathrm{i} a^3 b^9 B c d-2 a^9 b^3 c C d+2 \mathrm{i} a^8 b^4 c C d-8 a^7 b^5 c C d+8 \mathrm{i} a^6 b^6 c C d-6 a^5 b^7 c C d+6 \mathrm{i} a^4 b^8 c C d+2 a^6 A b^6 d^2-2 \mathrm{i} a^5 A b^7 d^2+$$
$$2 a^4 A b^8 d^2-2 \mathrm{i} a^3 A b^9 d^2-a^9 b^3 B d^2+\mathrm{i} a^8 b^4 B d^2-4 a^7 b^5 B d^2+4 \mathrm{i} a^6 b^6 B d^2-3 a^5 b^7 B d^2+3 \mathrm{i} a^4 b^8 B d^2+2 a^{10} b^2 C d^2-2 \mathrm{i} a^9 b^3 C d^2+$$
$$\left.\left.6 a^8 b^4 C d^2-6 \mathrm{i} a^7 b^5 C d^2+4 a^6 b^6 C d^2-4 \mathrm{i} a^5 b^7 C d^2\right)(e+f x)\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left.\left(a^2 (a-\mathrm{i} b)^4 (a+\mathrm{i} b)^3 b^5 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\right)\right)-$$
$$\left(\mathrm{i}\left(2 a A b^4 c^2-a^2 b^3 B c^2+b^5 B c^2-2 a b^4 c^2 C-2 a^2 A b^3 c d+2 A b^5 c d-4 a b^4 B c d+2 a^4 b c C d+6 a^2 b^3 c C d-2 a A b^4 d^2+\right.\right.$$
$$\left.\left.a^4 b B d^2+3 a^2 b^3 B d^2-2 a^5 C d^2-4 a^3 b^2 C d^2\right)\text{ArcTan}[\text{Tan}[e+f x]]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left(b^3\left(a^2+b^2\right)^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\right)+$$
$$\frac{\left(-2 b c C d-b B d^2+2 a C d^2\right)\text{Log}[\text{Cos}[e+f x]]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2}{b^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2}+$$
$$\left(\left(2 a A b^4 c^2-a^2 b^3 B c^2+b^5 B c^2-2 a b^4 c^2 C-2 a^2 A b^3 c d+2 A b^5 c d-\right.\right.$$
$$\left.4 a b^4 B c d+2 a^4 b c C d+6 a^2 b^3 c C d-2 a A b^4 d^2+a^4 b B d^2+3 a^2 b^3 B d^2-2 a^5 C d^2-4 a^3 b^2 C d^2\right)$$
$$\left.\text{Log}\left[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\right](a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left(2 b^3\left(a^2+b^2\right)^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\right)+$$
$$\left(\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\left(a^5 b C d^2+2 a^3 b^3 C d^2+a b^5 C d^2+a^4 A b^2 c^2 (e+f x)-a^2 A b^4 c^2 (e+f x)+2 a^3 b^3 B c^2 (e+f x)-\right.\right.$$
$$a^4 b^2 c^2 C (e+f x)+a^2 b^4 c^2 C (e+f x)+4 a^3 A b^3 c d (e+f x)-2 a^4 b^2 B c d (e+f x)+2 a^2 b^4 B c d (e+f x)-4 a^3 b^3 c C d (e+f x)-$$
$$a^4 A b^2 d^2 (e+f x)+a^2 A b^4 d^2 (e+f x)-2 a^3 b^3 B d^2 (e+f x)+a^4 b^2 C d^2 (e+f x)-a^2 b^4 C d^2 (e+f x)-a^5 b C d^2\,\text{Cos}[2 (e+f x)]-$$
$$2 a^3 b^3 C d^2\,\text{Cos}[2 (e+f x)]-a b^5 C d^2\,\text{Cos}[2 (e+f x)]+a^4 A b^2 c^2 (e+f x)\,\text{Cos}[2 (e+f x)]-a^2 A b^4 c^2 (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$2 a^3 b^3 B c^2 (e+f x)\,\text{Cos}[2 (e+f x)]-a^4 b^2 c^2 C (e+f x)\,\text{Cos}[2 (e+f x)]+a^2 b^4 c^2 C (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$4 a^3 A b^3 c d (e+f x)\,\text{Cos}[2 (e+f x)]-2 a^4 b^2 B c d (e+f x)\,\text{Cos}[2 (e+f x)]+2 a^2 b^4 B c d (e+f x)\,\text{Cos}[2 (e+f x)]-$$
$$4 a^3 b^3 c C d (e+f x)\,\text{Cos}[2 (e+f x)]-a^4 A b^2 d^2 (e+f x)\,\text{Cos}[2 (e+f x)]+a^2 A b^4 d^2 (e+f x)\,\text{Cos}[2 (e+f x)]-$$
$$2 a^3 b^3 B d^2 (e+f x)\,\text{Cos}[2 (e+f x)]+a^4 b^2 C d^2 (e+f x)\,\text{Cos}[2 (e+f x)]-a^2 b^4 C d^2 (e+f x)\,\text{Cos}[2 (e+f x)]+$$
$$a^2 A b^4 c^2\,\text{Sin}[2 (e+f x)]+A b^6 c^2\,\text{Sin}[2 (e+f x)]-a^3 b^3 B c^2\,\text{Sin}[2 (e+f x)]-a b^5 B c^2\,\text{Sin}[2 (e+f x)]+a^4 b^2 c^2 C\,\text{Sin}[2 (e+f x)]+$$
$$a^2 b^4 c^2 C\,\text{Sin}[2 (e+f x)]-2 a^3 A b^3 c d\,\text{Sin}[2 (e+f x)]-2 a A b^5 c d\,\text{Sin}[2 (e+f x)]+2 a^4 b^2 B c d\,\text{Sin}[2 (e+f x)]+$$
$$2 a^2 b^4 B c d\,\text{Sin}[2 (e+f x)]-2 a^5 b c C d\,\text{Sin}[2 (e+f x)]-2 a^3 b^3 c C d\,\text{Sin}[2 (e+f x)]+a^4 A b^2 d^2\,\text{Sin}[2 (e+f x)]+$$
$$a^2 A b^4 d^2\,\text{Sin}[2 (e+f x)]-a^5 b B d^2\,\text{Sin}[2 (e+f x)]-a^3 b^3 B d^2\,\text{Sin}[2 (e+f x)]+2 a^6 C d^2\,\text{Sin}[2 (e+f x)]+$$
$$3 a^4 b^2 C d^2\,\text{Sin}[2 (e+f x)]+a^2 b^4 C d^2\,\text{Sin}[2 (e+f x)]+a^3 A b^3 c^2 (e+f x)\,\text{Sin}[2 (e+f x)]-a A b^5 c^2 (e+f x)\,\text{Sin}[2 (e+f x)]+$$
$$2 a^2 b^4 B c^2 (e+f x)\,\text{Sin}[2 (e+f x)]-a^3 b^3 c^2 C (e+f x)\,\text{Sin}[2 (e+f x)]+a b^5 c^2 C (e+f x)\,\text{Sin}[2 (e+f x)]+$$
$$4 a^2 A b^4 c d (e+f x)\,\text{Sin}[2 (e+f x)]-2 a^3 b^3 B c d (e+f x)\,\text{Sin}[2 (e+f x)]+2 a b^5 B c d (e+f x)\,\text{Sin}[2 (e+f x)]-$$
$$4 a^2 b^4 c C d (e+f x)\,\text{Sin}[2 (e+f x)]-a^3 A b^3 d^2 (e+f x)\,\text{Sin}[2 (e+f x)]+a A b^5 d^2 (e+f x)\,\text{Sin}[2 (e+f x)]-$$
$$\left.\left.2 a^2 b^4 B d^2 (e+f x)\,\text{Sin}[2 (e+f x)]+a^3 b^3 C d^2 (e+f x)\,\text{Sin}[2 (e+f x)]-a b^5 C d^2 (e+f x)\,\text{Sin}[2 (e+f x)]\right)(c+d\,\text{Tan}[e+f x])^2\right)\Big/$$
$$\left(2 a (a-\mathrm{i} b)^2 (a+\mathrm{i} b)^2 b^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\right)$$

- **Problem 63: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d\,\text{Tan}[e+f x])^2\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(a+b\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 597 leaves, 6 steps):

$$-\frac{1}{\left(a^2+b^2\right)^3}\left(a^3\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-3 a b^2\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-3 a^2 b\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)+b^3\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) x-$$
$$\frac{1}{\left(a^2+b^2\right)^3 f}\left(3 a^2 b\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^3\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)+\right.$$
$$\left.a^3\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)-3 a b^2\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]+$$
$$\frac{1}{b^3\left(a^2+b^2\right)^3 f}\left(a^6 C d^2+3 a^4 b^2 C d^2-3 a^2 b^4\left(c^2 C+2 B c d-2 C d^2-A\left(c^2-d^2\right)\right)+b^6\left(c (c C+2 B d)-A\left(c^2-d^2\right)\right)-\right.$$
$$\left.a^3 b^3\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)+3 a b^5\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right) \text{Log}[a+b \text{Tan}[e+f x]]-$$
$$\frac{(b c-a d)\left(a^4 C d+b^4 (B c+A d)+2 a b^3 (A c-c C-B d)-a^2 b^2 (B c+(A-3 C) d)\right)}{b^3\left(a^2+b^2\right)^2 f (a+b \text{Tan}[e+f x])}-\frac{\left(A b^2-a (b B-a C)\right) (c+d \text{Tan}[e+f x])^2}{2 b\left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^2}$$

Result (type 3, 2499 leaves) :

$$\left(\left(-A\,b^4\,c^2+a\,b^3\,B\,c^2-a^2\,b^2\,c^2\,C+2\,a\,A\,b^3\,c\,d-2\,a^2\,b^2\,B\,c\,d+2\,a^3\,b\,c\,C\,d-a^2\,A\,b^2\,d^2+a^3\,b\,B\,d^2-a^4\,C\,d^2\right)\,\text{Sec}[e+f\,x]\right.$$
$$\left.(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(2\,(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,b\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\right)+$$
$$\left(\left(a^3\,A\,c^2-3\,a\,A\,b^2\,c^2+3\,a^2\,b\,B\,c^2-b^3\,B\,c^2-a^3\,c^2\,C+3\,a\,b^2\,c^2\,C+6\,a^2\,A\,b\,c\,d-2\,A\,b^3\,c\,d-2\,a^3\,B\,c\,d+6\,a\,b^2\,B\,c\,d-6\,a^2\,b\,c\,C\,d+2\,b^3\,c\,C\,d-\right.\right.$$
$$\left.\left.a^3\,A\,d^2+3\,a\,A\,b^2\,d^2-3\,a^2\,b\,B\,d^2+b^3\,B\,d^2+a^3\,C\,d^2-3\,a\,b^2\,C\,d^2\right)\,(e+f\,x)\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/$$
$$\left((a-\mathbb{i}\,b)^3\,(a+\mathbb{i}\,b)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\right)+$$
$$\left(\left(3\,\mathbb{i}\,a^9\,A\,b^6\,c^2+3\,a^8\,A\,b^7\,c^2+5\,\mathbb{i}\,a^7\,A\,b^8\,c^2+5\,a^6\,A\,b^9\,c^2+\mathbb{i}\,a^5\,A\,b^{10}\,c^2+a^4\,A\,b^{11}\,c^2-\mathbb{i}\,a^3\,A\,b^{12}\,c^2-a^2\,A\,b^{13}\,c^2-\mathbb{i}\,a^{10}\,b^5\,B\,c^2-a^9\,b^6\,B\,c^2+\right.\right.$$
$$\mathbb{i}\,a^8\,b^7\,B\,c^2+a^7\,b^8\,B\,c^2+5\,\mathbb{i}\,a^6\,b^9\,B\,c^2+5\,a^5\,b^{10}\,B\,c^2+3\,\mathbb{i}\,a^4\,b^{11}\,B\,c^2+3\,a^3\,b^{12}\,B\,c^2-3\,\mathbb{i}\,a^9\,b^6\,c^2\,C-3\,a^8\,b^7\,c^2\,C-5\,\mathbb{i}\,a^7\,b^8\,c^2\,C-5\,a^6\,b^9\,c^2\,C-$$
$$\mathbb{i}\,a^5\,b^{10}\,c^2\,C-a^4\,b^{11}\,c^2\,C+\mathbb{i}\,a^3\,b^{12}\,c^2\,C+a^2\,b^{13}\,c^2\,C-2\,\mathbb{i}\,a^{10}\,A\,b^5\,c\,d-2\,a^9\,A\,b^6\,c\,d+2\,\mathbb{i}\,a^8\,A\,b^7\,c\,d+2\,a^7\,A\,b^8\,c\,d+10\,\mathbb{i}\,a^6\,A\,b^9\,c\,d+$$
$$10\,a^5\,A\,b^{10}\,c\,d+6\,\mathbb{i}\,a^4\,A\,b^{11}\,c\,d+6\,a^3\,A\,b^{12}\,c\,d-6\,\mathbb{i}\,a^9\,b^6\,B\,c\,d-6\,a^8\,b^7\,B\,c\,d-10\,\mathbb{i}\,a^7\,b^8\,B\,c\,d-10\,a^6\,b^9\,B\,c\,d-2\,\mathbb{i}\,a^5\,b^{10}\,B\,c\,d-$$
$$2\,a^4\,b^{11}\,B\,c\,d+2\,\mathbb{i}\,a^3\,b^{12}\,B\,c\,d+2\,a^2\,b^{13}\,B\,c\,d+2\,\mathbb{i}\,a^{10}\,b^5\,c\,C\,d+2\,a^9\,b^6\,c\,C\,d-2\,\mathbb{i}\,a^8\,b^7\,c\,C\,d-2\,a^7\,b^8\,c\,C\,d-10\,\mathbb{i}\,a^6\,b^9\,c\,C\,d-10\,a^5\,b^{10}\,c\,C\,d-$$
$$6\,\mathbb{i}\,a^4\,b^{11}\,c\,C\,d-6\,a^3\,b^{12}\,c\,C\,d-3\,\mathbb{i}\,a^9\,A\,b^6\,d^2-3\,a^8\,A\,b^7\,d^2-5\,\mathbb{i}\,a^7\,A\,b^8\,d^2-5\,a^6\,A\,b^9\,d^2-\mathbb{i}\,a^5\,A\,b^{10}\,d^2-a^4\,A\,b^{11}\,d^2+\mathbb{i}\,a^3\,A\,b^{12}\,d^2+$$
$$a^2\,A\,b^{13}\,d^2+\mathbb{i}\,a^{10}\,b^5\,B\,d^2+a^9\,b^6\,B\,d^2-\mathbb{i}\,a^8\,b^7\,B\,d^2-a^7\,b^8\,B\,d^2-5\,\mathbb{i}\,a^6\,b^9\,B\,d^2-5\,a^5\,b^{10}\,B\,d^2-3\,\mathbb{i}\,a^4\,b^{11}\,B\,d^2-3\,a^3\,b^{12}\,B\,d^2+\mathbb{i}\,a^{13}\,b^2\,C\,d^2+$$
$$\left.a^{12}\,b^3\,C\,d^2+5\,\mathbb{i}\,a^{11}\,b^4\,C\,d^2+5\,a^{10}\,b^5\,C\,d^2+13\,\mathbb{i}\,a^9\,b^6\,C\,d^2+13\,a^8\,b^7\,C\,d^2+15\,\mathbb{i}\,a^7\,b^8\,C\,d^2+15\,a^6\,b^9\,C\,d^2+6\,\mathbb{i}\,a^5\,b^{10}\,C\,d^2+6\,a^4\,b^{11}\,C\,d^2\right)$$
$$\left.(e+f\,x)\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/$$
$$\left(a^2\,(a-\mathbb{i}\,b)^6\,(a+\mathbb{i}\,b)^5\,b^5\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\right)-$$
$$\frac{1}{b^3\,\left(a^2+b^2\right)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3}$$
$$\mathbb{i}\,\left(3\,a^2\,A\,b^4\,c^2-A\,b^6\,c^2-a^3\,b^3\,B\,c^2+3\,a\,b^5\,B\,c^2-3\,a^2\,b^4\,c^2\,C+b^6\,c^2\,C-2\,a^3\,A\,b^3\,c\,d+6\,a\,A\,b^5\,c\,d-6\,a^2\,b^4\,B\,c\,d+\right.$$
$$\left.2\,b^6\,B\,c\,d+2\,a^3\,b^3\,c\,C\,d-6\,a\,b^5\,c\,C\,d-3\,a^2\,A\,b^4\,d^2+A\,b^6\,d^2+a^3\,b^3\,B\,d^2-3\,a\,b^5\,B\,d^2+a^6\,C\,d^2+3\,a^4\,b^2\,C\,d^2+6\,a^2\,b^4\,C\,d^2\right)$$
$$\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2-$$
$$\frac{C\,d^2\,\text{Log}[\text{Cos}[e+f\,x]]\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2}{b^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3}+$$
$$\frac{1}{2\,b^3\,\left(a^2+b^2\right)^3\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3}$$
$$\left(3\,a^2\,A\,b^4\,c^2-A\,b^6\,c^2-a^3\,b^3\,B\,c^2+3\,a\,b^5\,B\,c^2-3\,a^2\,b^4\,c^2\,C+b^6\,c^2\,C-2\,a^3\,A\,b^3\,c\,d+6\,a\,A\,b^5\,c\,d-6\,a^2\,b^4\,B\,c\,d+\right.$$
$$\left.2\,b^6\,B\,c\,d+2\,a^3\,b^3\,c\,C\,d-6\,a\,b^5\,c\,C\,d-3\,a^2\,A\,b^4\,d^2+A\,b^6\,d^2+a^3\,b^3\,B\,d^2-3\,a\,b^5\,B\,d^2+a^6\,C\,d^2+3\,a^4\,b^2\,C\,d^2+6\,a^2\,b^4\,C\,d^2\right)$$
$$\text{Log}\left[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\right]\,\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^2+$$
$$\left(\text{Sec}[e+f\,x]\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,\left(3\,a\,A\,b^4\,c^2\,\text{Sin}[e+f\,x]-2\,a^2\,b^3\,B\,c^2\,\text{Sin}[e+f\,x]+b^5\,B\,c^2\,\text{Sin}[e+f\,x]+a^3\,b^2\,c^2\,C\,\text{Sin}[e+f\,x]-\right.\right.$$
$$2\,a\,b^4\,c^2\,C\,\text{Sin}[e+f\,x]-4\,a^2\,A\,b^3\,c\,d\,\text{Sin}[e+f\,x]+2\,A\,b^5\,c\,d\,\text{Sin}[e+f\,x]+2\,a^3\,b^2\,B\,c\,d\,\text{Sin}[e+f\,x]-4\,a\,b^4\,B\,c\,d\,\text{Sin}[e+f\,x]+6\,a^2\,b^3\,c\,C\,d$$
$$\left.\text{Sin}[e+f\,x]+a^3\,A\,b^2\,d^2\,\text{Sin}[e+f\,x]-2\,a\,A\,b^4\,d^2\,\text{Sin}[e+f\,x]+3\,a^2\,b^3\,B\,d^2\,\text{Sin}[e+f\,x]-a^5\,C\,d^2\,\text{Sin}[e+f\,x]-4\,a^3\,b^2\,C\,d^2\,\text{Sin}[e+f\,x]\right)$$
$$\left.(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(a\,(a-\mathbb{i}\,b)^2\,(a+\mathbb{i}\,b)^2\,b^2\,f\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,(a+b\,\text{Tan}[e+f\,x])^3\right)$$

- **Problem 64: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,\mathbb{d}x$$

Optimal (type 3, 603 leaves, 7 steps) :

$$\left(a^2\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)+b^2\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-2 a b\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x+\frac{1}{f}\left(2 a b\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-a^2\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)+b^2\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) \mathrm{Log}[\mathrm{Cos}[e+f x]]-\frac{1}{f} d\left(2 a b\left(c^2 C+2 B c d-C d^2-A\left(c^2-d^2\right)\right)-a^2\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)+b^2\left(2 c(A-C) d+B\left(c^2-d^2\right)\right)\right) \mathrm{Tan}[e+f x]+\frac{\left(2 a b(A c-c C-B d)+a^2(B c+(A-C) d)-b^2(B c+(A-C) d)\right)(c+d \mathrm{Tan}[e+f x])^2}{2 f}+\frac{\left(a^2 B-b^2 B+2 a b(A-C)\right)(c+d \mathrm{Tan}[e+f x])^3}{3 f}+\frac{\left(5 a^2 C d^2-6 a b d(c C-5 B d)+b^2\left(c^2 C-3 B c d+15(A-C) d^2\right)\right)(c+d \mathrm{Tan}[e+f x])^4}{60 d^3 f}-\frac{b(b c C-3 b B d-a C d) \mathrm{Tan}[e+f x](c+d \mathrm{Tan}[e+f x])^4}{15 d^2 f}+\frac{C(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^4}{6 d f}$$

Result (type 3, 1616 leaves) :

$$\left(\left(3 b^2 c^2 C d+3 b^2 B c d^2+6 a b c C d^2+A b^2 d^3+2 a b B d^3+a^2 C d^3-3 b^2 C d^3\right) \mathrm{Cos}[e+f x](a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3\right) / \left(4 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3\right)+\left(\left(b^2 B c^3+2 a b c^3 C+3 A b^2 c^2 d+6 a b B c^2 d+3 a^2 c^2 C d-6 b^2 c^2 C d+6 a A b c d^2+3 a^2 B c d^2-6 b^2 B c d^2-12 a b c C d^2+a^2 A d^3-2 A b^2 d^3-4 a b B d^3-2 a^2 C d^3+3 b^2 C d^3\right) \mathrm{Cos}[e+f x]^3(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3\right) / \left(2 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3\right)+\left(\left(a^2 A c^3-A b^2 c^3-2 a b B c^3-a^2 c^3 C+b^2 c^3 C-6 a A b c^2 d-3 a^2 B c^2 d+3 b^2 B c^2 d+6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2+6 a b B c d^2+3 a^2 c C d^2-3 b^2 c C d^2+2 a A b d^3+a^2 B d^3-b^2 B d^3-2 a b C d^3\right)(e+f x) \mathrm{Cos}[e+f x]^5(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3\right) / \left(f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3\right)+\left(\left(-2 a A b c^3-a^2 B c^3+b^2 B c^3+2 a b c^3 C-3 a^2 A c^2 d+3 A b^2 c^2 d+6 a b B c^2 d+3 a^2 c^2 C d-3 b^2 c^2 C d+6 a A b c d^2+3 a^2 B c d^2-3 b^2 B c d^2-6 a b c C d^2+a^2 A d^3-A b^2 d^3-2 a b B d^3-a^2 C d^3+b^2 C d^3\right) \mathrm{Cos}[e+f x]^5 \mathrm{Log}[\mathrm{Cos}[e+f x]](a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3\right) / \left(f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3\right)+\frac{b^2 C d^3 \mathrm{Sec}[e+f x](a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3}{6 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3}+\frac{1}{15 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3} \mathrm{Cos}[e+f x]^2\left(5 b^2 c^3 C \mathrm{Sin}[e+f x]+15 b^2 B c^2 d \mathrm{Sin}[e+f x]+30 a b c^2 C d \mathrm{Sin}[e+f x]+15 A b^2 c d^2 \mathrm{Sin}[e+f x]+30 a b B c d^2 \mathrm{Sin}[e+f x]+15 a^2 c C d^2 \mathrm{Sin}[e+f x]-33 b^2 c C d^2 \mathrm{Sin}[e+f x]+10 a A b d^3 \mathrm{Sin}[e+f x]+5 a^2 B d^3 \mathrm{Sin}[e+f x]-11 b^2 B d^3 \mathrm{Sin}[e+f x]-22 a b C d^3 \mathrm{Sin}[e+f x]\right)(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3+\left(\left(3 b^2 c C d^2 \mathrm{Sin}[e+f x]+b^2 B d^3 \mathrm{Sin}[e+f x]+2 a b C d^3 \mathrm{Sin}[e+f x]\right)(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3\right) / \left(5 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3\right)+\frac{1}{15 f(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^2(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3} \mathrm{Cos}[e+f x]^4\left(15 A b^2 c^3 \mathrm{Sin}[e+f x]+30 a b B c^3 \mathrm{Sin}[e+f x]+15 a^2 c^3 C \mathrm{Sin}[e+f x]-20 b^2 c^3 C \mathrm{Sin}[e+f x]+90 a A b c^2 d \mathrm{Sin}[e+f x]+45 a^2 B c^2 d \mathrm{Sin}[e+f x]-60 b^2 B c^2 d \mathrm{Sin}[e+f x]-120 a b c^2 C d \mathrm{Sin}[e+f x]+45 a^2 A c d^2 \mathrm{Sin}[e+f x]-60 A b^2 c d^2 \mathrm{Sin}[e+f x]-120 a b B c d^2 \mathrm{Sin}[e+f x]-60 a^2 c C d^2 \mathrm{Sin}[e+f x]+69 b^2 c C d^2 \mathrm{Sin}[e+f x]-40 a A b d^3 \mathrm{Sin}[e+f x]-20 a^2 B d^3 \mathrm{Sin}[e+f x]+23 b^2 B d^3 \mathrm{Sin}[e+f x]+46 a b C d^3 \mathrm{Sin}[e+f x]\right)(a+b \mathrm{Tan}[e+f x])^2(c+d \mathrm{Tan}[e+f x])^3$$

Problem 65: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 389 leaves, 6 steps):

$$\left(a\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)-b\left((A-C)\,d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x-\frac{1}{f}\left(A\left(b c^3+3 a c^2 d-3 b c d^2-a d^3\right)-b\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3\right)+a\left(B c^3-3 c^2 C d-3 B c d^2+C d^3\right)\right)\mathrm{Log}[\mathrm{Cos}[e+f\,x]]+\frac{d\left(a\left(B c^2-2 c C d-B d^2\right)-b\left(c^2 C+2 B c d-C d^2\right)+A\left(2 a c d+b\left(c^2-d^2\right)\right)\right)\mathrm{Tan}[e+f\,x]}{f}+\frac{(A b c+a B c-b c C+a A d-b B d-a C d)\,(c+d\,\mathrm{Tan}[e+f\,x])^2}{2 f}+\frac{(A b+a B-b C)\,(c+d\,\mathrm{Tan}[e+f\,x])^3}{3 f}-\frac{(b c C-5 b B d-5 a C d)\,(c+d\,\mathrm{Tan}[e+f\,x])^4}{20 d^2 f}+\frac{b\,C\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^4}{5 d f}$$

Result (type 3, 1022 leaves):

$$\frac{\left(3 b c C d^2+b B d^3+a C d^3\right)(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3}{4 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3}+\left(\left(b c^3 C+3 b B c^2 d+3 a c^2 C d+3 A b c d^2+3 a B c d^2-6 b c C d^2+a A d^3-2 b B d^3-2 a C d^3\right)\mathrm{Cos}[e+f\,x]^2\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(2 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)+\left(\left(a A c^3-b B c^3-a c^3 C-3 A b c^2 d-3 a B c^2 d+3 b c^2 C d-3 a A c d^2+3 b B c d^2+3 a c C d^2+A b d^3+a B d^3-b C d^3\right)(e+f\,x)\,\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)+\left(\left(-A b c^3-a B c^3+b c^3 C-3 a A c^2 d+3 b B c^2 d+3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2+a A d^3-b B d^3-a C d^3\right)\mathrm{Cos}[e+f\,x]^4\,\mathrm{Log}[\mathrm{Cos}[e+f\,x]]\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)+\left(\mathrm{Cos}[e+f\,x]\left(15 b c^2 C d\,\mathrm{Sin}[e+f\,x]+15 b B c d^2\,\mathrm{Sin}[e+f\,x]+15 a c C d^2\,\mathrm{Sin}[e+f\,x]+5 A b d^3\,\mathrm{Sin}[e+f\,x]+5 a B d^3\,\mathrm{Sin}[e+f\,x]-11 b C d^3\,\mathrm{Sin}[e+f\,x]\right)(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/\left(15 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)+\frac{1}{15 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3}\mathrm{Cos}[e+f\,x]^3\left(15 b B c^3\,\mathrm{Sin}[e+f\,x]+15 a c^3 C\,\mathrm{Sin}[e+f\,x]+45 A b c^2 d\,\mathrm{Sin}[e+f\,x]+45 a B c^2 d\,\mathrm{Sin}[e+f\,x]-60 b c^2 C d\,\mathrm{Sin}[e+f\,x]+45 a A c d^2\,\mathrm{Sin}[e+f\,x]-60 b B c d^2\,\mathrm{Sin}[e+f\,x]-60 a c C d^2\,\mathrm{Sin}[e+f\,x]-20 A b d^3\,\mathrm{Sin}[e+f\,x]-20 a B d^3\,\mathrm{Sin}[e+f\,x]+23 b C d^3\,\mathrm{Sin}[e+f\,x]\right)(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3+\frac{b\,C\,d^3\,\mathrm{Tan}[e+f\,x]\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3}{5 f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3}$$

Problem 67: Result more than twice size of optimal antiderivative.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^3\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 363 leaves, 7 steps):

$$-\frac{\left(a\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-b\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right) x}{a^2+b^2}-\frac{1}{\left(a^2+b^2\right) f}$$
$$\left(b\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3\right)+a\left(B c^3-3 c^2 C d-3 B c d^2+C d^3\right)+A\left(a d\left(3 c^2-d^2\right)-b\left(c^3-3 c d^2\right)\right)\right) \mathrm{Log}[\mathrm{Cos}[e+f x]]+$$
$$\frac{\left(A b^2-a(b B-a C)\right)(b c-a d)^3 \mathrm{Log}[a+b \mathrm{Tan}[e+f x]]}{b^4\left(a^2+b^2\right) f}+\frac{d\left(b^2 d(B c+(A-C) d)+(b c-a d)(b c C+b B d-a C d)\right) \mathrm{Tan}[e+f x]}{b^3 f}+$$
$$\frac{(b c C+b B d-a C d)(c+d \mathrm{Tan}[e+f x])^2}{2 b^2 f}+\frac{C(c+d \mathrm{Tan}[e+f x])^3}{3 b f}$$

Result (type 3, 1596 leaves) :

$$\left(\left(-b^3 c^3 C-3 b^3 B c^2 d+3 a b^2 c^2 C d-3 A b^3 c d^2+3 a b^2 B c d^2-3 a^2 b c C d^2+3 b^3 c C d^2+a A b^2 d^3-a^2 b B d^3+b^3 B d^3+a^3 C d^3-a b^2 C d^3\right) \mathrm{Cos}[e+f x]^2\right.$$
$$\left.\mathrm{Log}[\mathrm{Cos}[e+f x]]\,(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^3\right) \Big/ \left(b^4 f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3(a+b \mathrm{Tan}[e+f x])\right)+$$
$$\left(\left(A b^5 c^3-a b^4 B c^3+a^2 b^3 c^3 C-3 a A b^4 c^2 d+3 a^2 b^3 B c^2 d-3 a^3 b^2 c^2 C d+3 a^2 A b^3 c d^2-3 a^3 b^2 B c d^2+3 a^4 b c C d^2-a^3 A b^2 d^3+a^4 b B d^3-a^5 C d^3\right)\right.$$
$$\left.\mathrm{Cos}[e+f x]^2 \mathrm{Log}[a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x]]\,(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])(c+d \mathrm{Tan}[e+f x])^3\right) \Big/$$
$$\left(b^4\left(a^2+b^2\right) f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3(a+b \mathrm{Tan}[e+f x])\right)+$$
$$\frac{1}{12 b^3\left(a^2+b^2\right) f(c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^3(a+b \mathrm{Tan}[e+f x])} \mathrm{Sec}[e+f x]\,(a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])$$
$$\left(18 a^2 b^2 c C d^2 \mathrm{Cos}[e+f x]+18 b^4 c C d^2 \mathrm{Cos}[e+f x]+6 a^2 b^2 B d^3 \mathrm{Cos}[e+f x]+6 b^4 B d^3 \mathrm{Cos}[e+f x]-6 a^3 b C d^3 \mathrm{Cos}[e+f x]-\right.$$
$$6 a b^3 C d^3 \mathrm{Cos}[e+f x]+9 a A b^3 c^3(e+f x) \mathrm{Cos}[e+f x]+9 b^4 B c^3(e+f x) \mathrm{Cos}[e+f x]-9 a b^3 c^3 C(e+f x) \mathrm{Cos}[e+f x]+$$
$$27 A b^4 c^2 d(e+f x) \mathrm{Cos}[e+f x]-27 a b^3 B c^2 d(e+f x) \mathrm{Cos}[e+f x]-27 b^4 c^2 C d(e+f x) \mathrm{Cos}[e+f x]-27 a A b^3 c d^2(e+f x) \mathrm{Cos}[e+f x]-$$
$$27 b^4 B c d^2(e+f x) \mathrm{Cos}[e+f x]+27 a b^3 c C d^2(e+f x) \mathrm{Cos}[e+f x]-9 A b^4 d^3(e+f x) \mathrm{Cos}[e+f x]+9 a b^3 B d^3(e+f x) \mathrm{Cos}[e+f x]+$$
$$9 b^4 C d^3(e+f x) \mathrm{Cos}[e+f x]+3 a A b^3 c^3(e+f x) \mathrm{Cos}[3(e+f x)]+3 b^4 B c^3(e+f x) \mathrm{Cos}[3(e+f x)]-$$
$$3 a b^3 c^3 C(e+f x) \mathrm{Cos}[3(e+f x)]+9 A b^4 c^2 d(e+f x) \mathrm{Cos}[3(e+f x)]-9 a b^3 B c^2 d(e+f x) \mathrm{Cos}[3(e+f x)]-$$
$$9 b^4 c^2 C d(e+f x) \mathrm{Cos}[3(e+f x)]-9 a A b^3 c d^2(e+f x) \mathrm{Cos}[3(e+f x)]-9 b^4 B c d^2(e+f x) \mathrm{Cos}[3(e+f x)]+$$
$$9 a b^3 c C d^2(e+f x) \mathrm{Cos}[3(e+f x)]-3 A b^4 d^3(e+f x) \mathrm{Cos}[3(e+f x)]+3 a b^3 B d^3(e+f x) \mathrm{Cos}[3(e+f x)]+$$
$$3 b^4 C d^3(e+f x) \mathrm{Cos}[3(e+f x)]+9 a^2 b^2 c^2 C d \mathrm{Sin}[e+f x]+9 b^4 c^2 C d \mathrm{Sin}[e+f x]+9 a^2 b^2 B c d^2 \mathrm{Sin}[e+f x]+$$
$$9 b^4 B c d^2 \mathrm{Sin}[e+f x]-9 a^3 b c C d^2 \mathrm{Sin}[e+f x]-9 a b^3 c C d^2 \mathrm{Sin}[e+f x]+3 a^2 A b^2 d^3 \mathrm{Sin}[e+f x]+3 A b^4 d^3 \mathrm{Sin}[e+f x]-$$
$$3 a^3 b B d^3 \mathrm{Sin}[e+f x]-3 a b^3 B d^3 \mathrm{Sin}[e+f x]+3 a^4 C d^3 \mathrm{Sin}[e+f x]+3 a^2 b^2 C d^3 \mathrm{Sin}[e+f x]+9 a^2 b^2 c^2 C d \mathrm{Sin}[3(e+f x)]+$$
$$9 b^4 c^2 C d \mathrm{Sin}[3(e+f x)]+9 a^2 b^2 B c d^2 \mathrm{Sin}[3(e+f x)]+9 b^4 B c d^2 \mathrm{Sin}[3(e+f x)]-9 a^3 b c C d^2 \mathrm{Sin}[3(e+f x)]-$$
$$9 a b^3 c C d^2 \mathrm{Sin}[3(e+f x)]+3 a^2 A b^2 d^3 \mathrm{Sin}[3(e+f x)]+3 A b^4 d^3 \mathrm{Sin}[3(e+f x)]-3 a^3 b B d^3 \mathrm{Sin}[3(e+f x)]-$$
$$\left.3 a b^3 B d^3 \mathrm{Sin}[3(e+f x)]+3 a^4 C d^3 \mathrm{Sin}[3(e+f x)]-a^2 b^2 C d^3 \mathrm{Sin}[3(e+f x)]-4 b^4 C d^3 \mathrm{Sin}[3(e+f x)]\right)(c+d \mathrm{Tan}[e+f x])^3$$

- **Problem 68: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(c+d \mathrm{Tan}[e+f x])^3\left(A+B \mathrm{Tan}[e+f x]+C \mathrm{Tan}[e+f x]^2\right)}{(a+b \mathrm{Tan}[e+f x])^2}\, dx$$

Optimal (type 3, 574 leaves, 7 steps) :

$$-\frac{1}{\left(a^2+b^2\right)^2}\left(b^2\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)+a^2\left(c^3 C+3 B c^2 d-3 c C d^2-B d^3-A\left(c^3-3 c d^2\right)\right)-2 a b\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right)$$

$$x+\frac{1}{\left(a^2+b^2\right)^2 f}$$

$$\left(2 a b\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)-a^2\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)+b^2\left((A-C) d\left(3 c^2-d^2\right)+B\left(c^3-3 c d^2\right)\right)\right)$$

$$\text{Log}[\text{Cos}[e+f x]]-\frac{1}{b^4\left(a^2+b^2\right)^2 f}$$

$$(b c-a d)^2\left(2 a^3 b B d-3 a^4 C d-b^4 (B c+3 A d)-2 a b^3 (A c-c C-2 B d)+a^2 b^2 (B c-(A+5 C) d)\right) \text{Log}[a+b \text{Tan}[e+f x]]-$$

$$\frac{d^2\left(3 a^3 C d-A b^2 (b c-a d)-b^3 (2 c C+B d)-a^2 b (3 c C+2 B d)+a b^2 (B c+2 C d)\right) \text{Tan}[e+f x]}{b^3\left(a^2+b^2\right) f}+$$

$$\frac{\left(2 A b^2-2 a b B+3 a^2 C+b^2 C\right) d (c+d \text{Tan}[e+f x])^2}{2 b^2\left(a^2+b^2\right) f}-\frac{\left(A b^2-a (b B-a C)\right) (c+d \text{Tan}[e+f x])^3}{b\left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])}$$

Result (type 3, 2467 leaves) :

$$\Big(\big(a^2 A c^3-A b^2 c^3+2 a b B c^3-a^2 c^3 C+b^2 c^3 C+6 a A b c^2 d-3 a^2 B c^2 d+3 b^2 B c^2 d-6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2-6 a b B c d^2+3 a^2 c C d^2-$$
$$3 b^2 c C d^2-2 a A b d^3+a^2 B d^3-b^2 B d^3+2 a b C d^3\big)\,(e+f x)\,\text{Cos}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big((a-\mathrm{i}\,b)^2\,(a+\mathrm{i}\,b)^2\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)-$$
$$\Big(\mathrm{i}\,\big(-2 a^6 A b^8 c^3+2\mathrm{i}\,a^5 A b^9 c^3-2 a^4 A b^{10} c^3+2\mathrm{i}\,a^3 A b^{11} c^3+a^7 b^7 B c^3-\mathrm{i}\,a^6 b^8 B c^3-a^3 b^{11} B c^3+\mathrm{i}\,a^2 b^{12} B c^3+2 a^6 b^8 c^3 C-2\mathrm{i}\,a^5 b^9 c^3 C+$$
$$2 a^4 b^{10} c^3 C-2\mathrm{i}\,a^3 b^{11} c^3 C+3 a^7 A b^7 c^2 d-3\mathrm{i}\,a^6 A b^8 c^2 d-3 a^3 A b^{11} c^2 d+3\mathrm{i}\,a^2 A b^{12} c^2 d+6 a^6 b^8 B c^2 d-6\mathrm{i}\,a^5 b^9 B c^2 d+$$
$$6 a^4 b^{10} B c^2 d-6\mathrm{i}\,a^3 b^{11} B c^2 d-3 a^9 b^5 c^2 C d+3\mathrm{i}\,a^8 b^6 c^2 C d-12 a^7 b^7 c^2 C d+12\mathrm{i}\,a^6 b^8 c^2 C d-9 a^5 b^9 c^2 C d+9\mathrm{i}\,a^4 b^{10} c^2 C d+$$
$$6 a^6 A b^8 c d^2-6\mathrm{i}\,a^5 A b^9 c d^2+6 a^4 A b^{10} c d^2-6\mathrm{i}\,a^3 A b^{11} c d^2-3 a^9 b^5 B c d^2+3\mathrm{i}\,a^8 b^6 B c d^2-12 a^7 b^7 B c d^2+12\mathrm{i}\,a^6 b^8 B c d^2-$$
$$9 a^5 b^9 B c d^2+9\mathrm{i}\,a^4 b^{10} B c d^2+6 a^{10} b^4 c C d^2-6\mathrm{i}\,a^9 b^5 c C d^2+18 a^8 b^6 c C d^2-18\mathrm{i}\,a^7 b^7 c C d^2+12 a^6 b^8 c C d^2-12\mathrm{i}\,a^5 b^9 c C d^2-$$
$$a^9 A b^5 d^3+\mathrm{i}\,a^8 A b^6 d^3-4 a^7 A b^7 d^3+4\mathrm{i}\,a^6 A b^8 d^3-3 a^5 A b^9 d^3+3\mathrm{i}\,a^4 A b^{10} d^3+2 a^{10} b^4 B d^3-2\mathrm{i}\,a^9 b^5 B d^3+6 a^8 b^6 B d^3-$$
$$6\mathrm{i}\,a^7 b^7 B d^3+4 a^6 b^8 B d^3-4\mathrm{i}\,a^5 b^9 B d^3-3 a^{11} b^3 C d^3+3\mathrm{i}\,a^{10} b^4 C d^3-8 a^9 b^5 C d^3+8\mathrm{i}\,a^8 b^6 C d^3-5 a^7 b^7 C d^3+5\mathrm{i}\,a^6 b^8 C d^3\big)$$
$$(e+f x)\,\text{Cos}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(a^2\,(a-\mathrm{i}\,b)^4\,(a+\mathrm{i}\,b)^3\,b^7\,f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)-$$
$$\frac{1}{b^4\,\left(a^2+b^2\right)^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2}$$
$$\mathrm{i}\,\big(2 a A b^5 c^3-a^2 b^4 B c^3+b^6 B c^3-2 a b^5 c^3 C-3 a^2 A b^4 c^2 d+3 A b^6 c^2 d-6 a b^5 B c^2 d+3 a^4 b^2 c^2 C d+9 a^2 b^4 c^2 C d-6 a A b^5 c d^2+$$
$$3 a^4 b^2 B c d^2+9 a^2 b^4 B c d^2-6 a^5 b c C d^2-12 a^3 b^3 c C d^2+a^4 A b^2 d^3+3 a^2 A b^4 d^3-2 a^5 b B d^3-4 a^3 b^3 B d^3+3 a^6 C d^3+5 a^4 b^2 C d^3\big)$$
$$\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Cos}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3+$$
$$\Big(\big(-3 b^2 c^2 C d-3 b^2 B c d^2+6 a b c C d^2-A b^2 d^3+2 a b B d^3-3 a^2 C d^3+b^2 C d^3\big)\,\text{Cos}[e+f x]\,\text{Log}[\text{Cos}[e+f x]]$$
$$(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)\Big/\Big(b^4 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)+$$
$$\frac{1}{2 b^4\,\left(a^2+b^2\right)^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2}$$
$$\big(2 a A b^5 c^3-a^2 b^4 B c^3+b^6 B c^3-2 a b^5 c^3 C-3 a^2 A b^4 c^2 d+3 A b^6 c^2 d-6 a b^5 B c^2 d+3 a^4 b^2 c^2 C d+9 a^2 b^4 c^2 C d-6 a A b^5 c d^2+$$
$$3 a^4 b^2 B c d^2+9 a^2 b^4 B c d^2-6 a^5 b c C d^2-12 a^3 b^3 c C d^2+a^4 A b^2 d^3+3 a^2 A b^4 d^3-2 a^5 b B d^3-4 a^3 b^3 B d^3+3 a^6 C d^3+5 a^4 b^2 C d^3\big)$$
$$\text{Cos}[e+f x]\,\text{Log}\left[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\right]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3+$$
$$\frac{C d^3\,\text{Sec}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3}{2 b^2 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2}+$$
$$\Big((a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,\big(3 b c C d^2\,\text{Sin}[e+f x]+b B d^3\,\text{Sin}[e+f x]-2 a C d^3\,\text{Sin}[e+f x]\big)\,(c+d\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(b^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big(\text{Cos}[e+f x]\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,\big(A b^5 c^3\,\text{Sin}[e+f x]-a b^4 B c^3\,\text{Sin}[e+f x]+a^2 b^3 c^3 C\,\text{Sin}[e+f x]-3 a A b^4 c^2 d\,\text{Sin}[e+f x]+$$
$$3 a^2 b^3 B c^2 d\,\text{Sin}[e+f x]-3 a^3 b^2 c^2 C d\,\text{Sin}[e+f x]+3 a^2 A b^3 c d^2\,\text{Sin}[e+f x]-3 a^3 b^2 B c d^2\,\text{Sin}[e+f x]+$$
$$3 a^4 b c C d^2\,\text{Sin}[e+f x]-a^3 A b^2 d^3\,\text{Sin}[e+f x]+a^4 b B d^3\,\text{Sin}[e+f x]-a^5 C d^3\,\text{Sin}[e+f x]\big)\,(c+d\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(a\,(a-\mathrm{i}\,b)\,(a+\mathrm{i}\,b)\,b^3 f\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)$$

- **Problem 70: Result more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[e+f x])^3\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{c+d\,\text{Tan}[e+f x]}\,dx$$

Optimal (type 3, 337 leaves, 7 steps) :

$$\frac{\left(a^3\,(A\,c-c\,C+B\,d)-3\,a\,b^2\,(A\,c-c\,C+B\,d)-3\,a^2\,b\,(B\,c-(A-C)\,d)+b^3\,(B\,c-(A-C)\,d)\right)x}{c^2+d^2}-\frac{1}{\left(c^2+d^2\right)f}$$
$$\left(3\,a^2\,b\,(A\,c-c\,C+B\,d)-b^3\,(A\,c-c\,C+B\,d)+a^3\,(B\,c-(A-C)\,d)-3\,a\,b^2\,(B\,c-(A-C)\,d)\right)\text{Log}[\text{Cos}[e+f\,x]]-$$
$$\frac{(b\,c-a\,d)^3\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\text{Log}[c+d\,\text{Tan}[e+f\,x]]}{d^4\,\left(c^2+d^2\right)f}+\frac{b\,\left(b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(b\,c\,C-b\,B\,d-a\,C\,d)\right)\text{Tan}[e+f\,x]}{d^3\,f}-$$
$$\frac{(b\,c\,C-b\,B\,d-a\,C\,d)\,(a+b\,\text{Tan}[e+f\,x])^2}{2\,d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^3}{3\,d\,f}$$

Result (type 3, 1596 leaves) :

$$\left(\left(b^3\,c^3\,C-b^3\,B\,c^2\,d-3\,a\,b^2\,c^2\,C\,d+A\,b^3\,c\,d^2+3\,a\,b^2\,B\,c\,d^2+3\,a^2\,b\,c\,C\,d^2-b^3\,c\,C\,d^2-3\,a\,A\,b^2\,d^3-3\,a^2\,b\,B\,d^3+b^3\,B\,d^3-a^3\,C\,d^3+3\,a\,b^2\,C\,d^3\right)\text{Cos}[e+f\,x]^2\right.$$
$$\left.\text{Log}[\text{Cos}[e+f\,x]]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^3\right)\Big/\left(d^4\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)+$$
$$\left(\left(-b^3\,c^5\,C+b^3\,B\,c^4\,d+3\,a\,b^2\,c^4\,C\,d-A\,b^3\,c^3\,d^2-3\,a\,b^2\,B\,c^3\,d^2-3\,a^2\,b\,c^3\,C\,d^2+3\,a\,A\,b^2\,c^2\,d^3+3\,a^2\,b\,B\,c^2\,d^3+a^3\,c^2\,C\,d^3-3\,a^2\,A\,b\,c\,d^4-a^3\,B\,c\,d^4+a^3\,A\,d^5\right)\right.$$
$$\left.\text{Cos}[e+f\,x]^2\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^3\right)\Big/$$
$$\left(d^4\,\left(c^2+d^2\right)f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])\right)+$$
$$\frac{1}{12\,d^3\,\left(c^2+d^2\right)f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])}\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])$$
$$\left(-6\,b^3\,c^3\,C\,d\,\text{Cos}[e+f\,x]+6\,b^3\,B\,c^2\,d^2\,\text{Cos}[e+f\,x]+18\,a\,b^2\,c^2\,C\,d^2\,\text{Cos}[e+f\,x]-6\,b^3\,c\,C\,d^3\,\text{Cos}[e+f\,x]+6\,b^3\,B\,d^4\,\text{Cos}[e+f\,x]+\right.$$
$$18\,a\,b^2\,C\,d^4\,\text{Cos}[e+f\,x]+9\,a^3\,A\,c\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]-27\,a\,A\,b^2\,c\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]-27\,a^2\,b\,B\,c\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$
$$9\,b^3\,B\,c\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]-9\,a^3\,c\,C\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]+27\,a\,b^2\,c\,C\,d^3\,(e+f\,x)\,\text{Cos}[e+f\,x]+27\,a^2\,A\,b\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]-$$
$$9\,A\,b^3\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]+9\,a^3\,B\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]-27\,a\,b^2\,B\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]-27\,a^2\,b\,C\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]+$$
$$9\,b^3\,C\,d^4\,(e+f\,x)\,\text{Cos}[e+f\,x]+3\,a^3\,A\,c\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-9\,a\,A\,b^2\,c\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-$$
$$9\,a^2\,b\,B\,c\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+3\,b^3\,B\,c\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-3\,a^3\,c\,C\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$
$$9\,a\,b^2\,c\,C\,d^3\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+9\,a^2\,A\,b\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-3\,A\,b^3\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$
$$3\,a^3\,B\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-9\,a\,b^2\,B\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]-9\,a^2\,b\,C\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+$$
$$3\,b^3\,C\,d^4\,(e+f\,x)\,\text{Cos}[3\,(e+f\,x)]+3\,b^3\,c^4\,C\,\text{Sin}[e+f\,x]-3\,b^3\,B\,c^3\,d\,\text{Sin}[e+f\,x]-9\,a\,b^2\,c^3\,C\,d\,\text{Sin}[e+f\,x]+$$
$$3\,A\,b^3\,c^2\,d^2\,\text{Sin}[e+f\,x]+9\,a\,b^2\,B\,c^2\,d^2\,\text{Sin}[e+f\,x]+9\,a^2\,b\,c^2\,C\,d^2\,\text{Sin}[e+f\,x]+3\,b^3\,c^2\,C\,d^2\,\text{Sin}[e+f\,x]-3\,b^3\,B\,c\,d^3\,\text{Sin}[e+f\,x]-$$
$$9\,a\,b^2\,c\,C\,d^3\,\text{Sin}[e+f\,x]+3\,A\,b^3\,d^4\,\text{Sin}[e+f\,x]+9\,a\,b^2\,B\,d^4\,\text{Sin}[e+f\,x]+9\,a^2\,b\,C\,d^4\,\text{Sin}[e+f\,x]+3\,b^3\,c^4\,C\,\text{Sin}[3\,(e+f\,x)]-$$
$$3\,b^3\,B\,c^3\,d\,\text{Sin}[3\,(e+f\,x)]-9\,a\,b^2\,c^3\,C\,d\,\text{Sin}[3\,(e+f\,x)]+3\,A\,b^3\,c^2\,d^2\,\text{Sin}[3\,(e+f\,x)]+9\,a\,b^2\,B\,c^2\,d^2\,\text{Sin}[3\,(e+f\,x)]+$$
$$9\,a^2\,b\,c^2\,C\,d^2\,\text{Sin}[3\,(e+f\,x)]-b^3\,c^2\,C\,d^2\,\text{Sin}[3\,(e+f\,x)]-3\,b^3\,B\,c\,d^3\,\text{Sin}[3\,(e+f\,x)]-9\,a\,b^2\,c\,C\,d^3\,\text{Sin}[3\,(e+f\,x)]+$$
$$\left.3\,A\,b^3\,d^4\,\text{Sin}[3\,(e+f\,x)]+9\,a\,b^2\,B\,d^4\,\text{Sin}[3\,(e+f\,x)]+9\,a^2\,b\,C\,d^4\,\text{Sin}[3\,(e+f\,x)]-4\,b^3\,C\,d^4\,\text{Sin}[3\,(e+f\,x)]\right)(a+b\,\text{Tan}[e+f\,x])^3$$

- **Problem 71: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^2\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 236 leaves, 6 steps) :

$$\frac{\left(a^2\,(A\,c-c\,C+B\,d)-b^2\,(A\,c-c\,C+B\,d)-2\,a\,b\,(B\,c-(A-C)\,d)\right)\,x}{c^2+d^2}-\frac{\left(2\,a\,b\,(A\,c-c\,C+B\,d)+a^2\,(B\,c-(A-C)\,d)-b^2\,(B\,c-(A-C)\,d)\right)\,\text{Log}[\text{Cos}[e+f\,x]]}{\left(c^2+d^2\right)\,f}+\frac{(b\,c-a\,d)^2\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\,\text{Log}[c+d\,\text{Tan}[e+f\,x]]}{d^3\,\left(c^2+d^2\right)\,f}-\frac{b\,(b\,c\,C-b\,B\,d-a\,C\,d)\,\text{Tan}[e+f\,x]}{d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^2}{2\,d\,f}$$

Result (type 3, 663 leaves):

$$\left(\left(a^2\,A\,c-A\,b^2\,c-2\,a\,b\,B\,c-a^2\,c\,C+b^2\,c\,C+2\,a\,A\,b\,d+a^2\,B\,d-b^2\,B\,d-2\,a\,b\,C\,d\right)\,(e+f\,x)\,\text{Cos}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])\right)+\left(\left(-b^2\,c^2\,C+b^2\,B\,c\,d+2\,a\,b\,c\,C\,d-A\,b^2\,d^2-2\,a\,b\,B\,d^2-a^2\,C\,d^2+b^2\,C\,d^2\right)\,\text{Cos}[e+f\,x]\,\text{Log}[\text{Cos}[e+f\,x]]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/\left(d^3\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])\right)+\left(\left(b^2\,c^4\,C-b^2\,B\,c^3\,d-2\,a\,b\,c^3\,C\,d+A\,b^2\,c^2\,d^2+2\,a\,b\,B\,c^2\,d^2+a^2\,c^2\,C\,d^2-2\,a\,A\,b\,c\,d^3-a^2\,B\,c\,d^3+a^2\,A\,d^4\right)\,\text{Cos}[e+f\,x]\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/\left(d^3\,\left(c^2+d^2\right)\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])\right)+\frac{b^2\,C\,\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])^2}{2\,d\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])}+\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,\left(-b^2\,c\,C\,\text{Sin}[e+f\,x]+b^2\,B\,d\,\text{Sin}[e+f\,x]+2\,a\,b\,C\,d\,\text{Sin}[e+f\,x]\right)\,(a+b\,\text{Tan}[e+f\,x])^2\right)\Big/\left(d^2\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])\right)$$

Problem 72: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{c+d\,\text{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 156 leaves, 5 steps):

$$\frac{(a\,(A\,c-c\,C+B\,d)-b\,(B\,c-(A-C)\,d))\,x}{c^2+d^2}-\frac{(A\,b\,c+a\,B\,c-b\,c\,C-a\,A\,d+b\,B\,d+a\,C\,d)\,\text{Log}[\text{Cos}[e+f\,x]]}{\left(c^2+d^2\right)\,f}-\frac{(b\,c-a\,d)\,\left(c^2\,C-B\,c\,d+A\,d^2\right)\,\text{Log}[c+d\,\text{Tan}[e+f\,x]]}{d^2\,\left(c^2+d^2\right)\,f}+\frac{b\,C\,\text{Tan}[e+f\,x]}{d\,f}$$

Result (type 3, 384 leaves):

$$\left((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\,(a+b\,\text{Tan}[e+f\,x])\,\left(a\,A\,c\,d^2\,e-b\,B\,c\,d^2\,e-a\,c\,C\,d^2\,e+A\,b\,d^3\,e+a\,B\,d^3\,e-b\,C\,d^3\,e+a\,A\,c\,d^2\,f\,x-b\,B\,c\,d^2\,f\,x-a\,c\,C\,d^2\,f\,x+A\,b\,d^3\,f\,x+a\,B\,d^3\,f\,x-b\,C\,d^3\,f\,x+(b\,c\,C-b\,B\,d-a\,C\,d)\,\left(c^2+d^2\right)\,\text{Log}[\text{Cos}[e+f\,x]]-b\,c^3\,C\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+b\,B\,c^2\,d\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+a\,c^2\,C\,d\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]-A\,b\,c\,d^2\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]-a\,B\,c\,d^2\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+a\,A\,d^3\,\text{Log}[c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]]+b\,C\,d\,\left(c^2+d^2\right)\,\text{Tan}[e+f\,x]\right)\right)\Big/\left((c-\mathrm{i}\,d)\,(c+\mathrm{i}\,d)\,d^2\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])\right)$$

Problem 75: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A + B \operatorname{Tan}[e + f x] + C \operatorname{Tan}[e + f x]^2}{(a + b \operatorname{Tan}[e + f x])^2 (c + d \operatorname{Tan}[e + f x])} \, dx$$

Optimal (type 3, 281 leaves, 4 steps):

$$\frac{\left(a^2 (A c - c C + B d) - b^2 (A c - c C + B d) + 2 a b (B c - (A - C) d)\right) x}{\left(a^2 + b^2\right)^2 \left(c^2 + d^2\right)} + \frac{1}{\left(a^2 + b^2\right)^2 (b c - a d)^2 f}$$
$$\left(2 a b^3 c (A - C) + 2 a^3 b B d - a^4 C d + b^4 (B c - A d) - a^2 b^2 (B c + 3 A d - C d)\right) \operatorname{Log}[a \operatorname{Cos}[e + f x] + b \operatorname{Sin}[e + f x]] +$$
$$\frac{d \left(c^2 C - B c d + A d^2\right) \operatorname{Log}[c \operatorname{Cos}[e + f x] + d \operatorname{Sin}[e + f x]]}{(b c - a d)^2 \left(c^2 + d^2\right) f} - \frac{A b^2 - a (b B - a C)}{\left(a^2 + b^2\right) (b c - a d) f (a + b \operatorname{Tan}[e + f x])}$$

Result (type 3, 2690 leaves):

$$\Big(\big(a^2 A c-A b^2 c+2 a b B c-a^2 c C+b^2 c C-2 a A b d+a^2 B d-b^2 B d+2 a b C d\big)\,(e+f x)\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2$$

$$(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/\Big((a-\mathrm{i}\, b)^2\,(a+\mathrm{i}\, b)^2\,(c-\mathrm{i}\, d)\,(c+\mathrm{i}\, d)\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\big(-2\,\mathrm{i}\, a^6 A b^4 c^8-2 a^5 A b^5 c^8-2\,\mathrm{i}\, a^4 A b^6 c^8-2 a^3 A b^7 c^8+\mathrm{i}\, a^7 b^3 B c^8+a^6 b^4 B c^8-\mathrm{i}\, a^3 b^7 B c^8-a^2 b^8 B c^8+2\,\mathrm{i}\, a^6 b^4 c^8 C+2 a^5 b^5 c^8 C+$$

$$2\,\mathrm{i}\, a^4 b^6 c^8 C+2 a^3 b^7 c^8 C+5\,\mathrm{i}\, a^7 A b^3 c^7 d+5 a^6 A b^4 c^7 d+6\,\mathrm{i}\, a^5 A b^5 c^7 d+6 a^4 A b^6 c^7 d+\mathrm{i}\, a^3 A b^7 c^7 d+a^2 A b^8 c^7 d-3\,\mathrm{i}\, a^8 b^2 B c^7 d-$$

$$3 a^7 b^3 B c^7 d-2\,\mathrm{i}\, a^6 b^4 B c^7 d-2 a^5 b^5 B c^7 d+\mathrm{i}\, a^4 b^6 B c^7 d+a^3 b^7 B c^7 d+\mathrm{i}\, a^9 b c^7 C d+a^8 b^2 c^7 C d-2\,\mathrm{i}\, a^7 b^3 c^7 C d-2 a^6 b^4 c^7 C d-$$

$$3\,\mathrm{i}\, a^5 b^5 c^7 C d-3 a^4 b^6 c^7 C d-3\,\mathrm{i}\, a^8 A b^2 c^6 d^2-3 a^7 A b^3 c^6 d^2-8\,\mathrm{i}\, a^6 A b^4 c^6 d^2-8 a^5 A b^5 c^6 d^2-5\,\mathrm{i}\, a^4 A b^6 c^6 d^2-5 a^3 A b^7 c^6 d^2+$$

$$2\,\mathrm{i}\, a^9 b B c^6 d^2+2 a^8 b^2 B c^6 d^2+4\,\mathrm{i}\, a^7 b^3 B c^6 d^2+4 a^6 b^4 B c^6 d^2-2\,\mathrm{i}\, a^3 b^7 B c^6 d^2-2 a^2 b^8 B c^6 d^2-\mathrm{i}\, a^{10} c^6 C d^2-a^9 b c^6 C d^2+$$

$$5\,\mathrm{i}\, a^6 b^4 c^6 C d^2+5 a^5 b^5 c^6 C d^2+4\,\mathrm{i}\, a^4 b^6 c^6 C d^2+4 a^3 b^7 c^6 C d^2+10\,\mathrm{i}\, a^7 A b^3 c^5 d^3+10 a^6 A b^4 c^5 d^3+12\,\mathrm{i}\, a^5 A b^5 c^5 d^3+12 a^4 A b^6 c^5 d^3+$$

$$2\,\mathrm{i}\, a^3 A b^7 c^5 d^3+2 a^2 A b^8 c^5 d^3-6\,\mathrm{i}\, a^8 b^2 B c^5 d^3-6 a^7 b^3 B c^5 d^3-4\,\mathrm{i}\, a^6 b^4 B c^5 d^3-4 a^5 b^5 B c^5 d^3+2\,\mathrm{i}\, a^4 b^6 B c^5 d^3+2 a^3 b^7 B c^5 d^3+$$

$$2\,\mathrm{i}\, a^9 b c^5 C d^3+2 a^8 b^2 c^5 C d^3-4\,\mathrm{i}\, a^7 b^3 c^5 C d^3-4 a^6 b^4 c^5 C d^3-6\,\mathrm{i}\, a^5 b^5 c^5 C d^3-6 a^4 b^6 c^5 C d^3-6\,\mathrm{i}\, a^8 A b^2 c^4 d^4-6 a^7 A b^3 c^4 d^4-$$

$$10\,\mathrm{i}\, a^6 A b^4 c^4 d^4-10 a^5 A b^5 c^4 d^4-4\,\mathrm{i}\, a^4 A b^6 c^4 d^4-4 a^3 A b^7 c^4 d^4+4\,\mathrm{i}\, a^9 b B c^4 d^4+4 a^8 b^2 B c^4 d^4+5\,\mathrm{i}\, a^7 b^3 B c^4 d^4+5 a^6 b^4 B c^4 d^4-$$

$$\mathrm{i}\, a^3 b^7 B c^4 d^4-a^2 b^8 B c^4 d^4-2\,\mathrm{i}\, a^{10} c^4 C d^4-2 a^9 b c^4 C d^4+4\,\mathrm{i}\, a^6 b^4 c^4 C d^4+4 a^5 b^5 c^4 C d^4+2\,\mathrm{i}\, a^4 b^6 c^4 C d^4+2 a^3 b^7 c^4 C d^4+$$

$$5\,\mathrm{i}\, a^7 A b^3 c^3 d^5+5 a^6 A b^4 c^3 d^5+6\,\mathrm{i}\, a^5 A b^5 c^3 d^5+6 a^4 A b^6 c^3 d^5+\mathrm{i}\, a^3 A b^7 c^3 d^5+a^2 A b^8 c^3 d^5-3\,\mathrm{i}\, a^8 b^2 B c^3 d^5-3 a^7 b^3 B c^3 d^5-$$

$$2\,\mathrm{i}\, a^6 b^4 B c^3 d^5-2 a^5 b^5 B c^3 d^5+\mathrm{i}\, a^4 b^6 B c^3 d^5+a^3 b^7 B c^3 d^5+\mathrm{i}\, a^9 b c^3 C d^5+a^8 b^2 c^3 C d^5-2\,\mathrm{i}\, a^7 b^3 c^3 C d^5-2 a^6 b^4 c^3 C d^5-$$

$$3\,\mathrm{i}\, a^5 b^5 c^3 C d^5-3 a^4 b^6 c^3 C d^5-3\,\mathrm{i}\, a^8 A b^2 c^2 d^6-3 a^7 A b^3 c^2 d^6-4\,\mathrm{i}\, a^6 A b^4 c^2 d^6-4 a^5 A b^5 c^2 d^6-\mathrm{i}\, a^4 A b^6 c^2 d^6-a^3 A b^7 c^2 d^6+$$

$$2\,\mathrm{i}\, a^9 b B c^2 d^6+2 a^8 b^2 B c^2 d^6+2\,\mathrm{i}\, a^7 b^3 B c^2 d^6+2 a^6 b^4 B c^2 d^6-\mathrm{i}\, a^{10} c^2 C d^6-a^9 b c^2 C d^6+\mathrm{i}\, a^6 b^4 c^2 C d^6+a^5 b^5 c^2 C d^6\big)$$

$$(e+f x)\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$

$$\Big(a^2\,(a-\mathrm{i}\, b)^4\,(a+\mathrm{i}\, b)^3\,c^2\,(c-\mathrm{i}\, d)\,(c+\mathrm{i}\, d)\,(-b c+a d)^3\,\big(c^2+d^2\big)\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)-$$

$$\Big(\mathrm{i}\,\big(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-3 a^2 A b^2 d-A b^4 d+2 a^3 b B d-a^4 C d+a^2 b^2 C d\big)$$

$$\mathrm{ArcTan}[\mathrm{Tan}[e+f x]]\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$

$$\Big(\big(a^2+b^2\big)^2\,(-b c+a d)^2\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\big(2 a A b^3 c-a^2 b^2 B c+b^4 B c-2 a b^3 c C-3 a^2 A b^2 d-A b^4 d+2 a^3 b B d-a^4 C d+a^2 b^2 C d\big)$$

$$\mathrm{Log}\big[(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\big]\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$

$$\Big(2\,\big(a^2+b^2\big)^2\,(-b c+a d)^2\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\big(c^2 C d-B c d^2+A d^3\big)\,\mathrm{Log}[c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]]\,\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$

$$\Big((b c-a d)^2\,\big(c^2+d^2\big)\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)+$$

$$\Big(\mathrm{Sec}[e+f x]^3\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])\,\big(-A b^3\,\mathrm{Sin}[e+f x]+a b^2 B\,\mathrm{Sin}[e+f x]-a^2 b C\,\mathrm{Sin}[e+f x]\big)\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])\Big)\Big/$$

$$\Big(a\,(a-\mathrm{i}\, b)\,(a+\mathrm{i}\, b)\,(-b c+a d)\,f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])\Big)$$

- **Problem 76: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2}{(a+b\,\mathrm{Tan}[e+f x])^3\,(c+d\,\mathrm{Tan}[e+f x])}\,dx$$

Optimal (type 3, 477 leaves, 5 steps) :

$$\frac{\left(a^3 (A c-c C+B d)-3 a b^2 (A c-c C+B d)+3 a^2 b (B c-(A-C) d)-b^3 (B c-(A-C) d)\right) x}{\left(a^2+b^2\right)^3 \left(c^2+d^2\right)}+$$

$$\frac{1}{\left(a^2+b^2\right)^3 (b c-a d)^3 f}\left(3 a b^5 B c^2-3 a^5 b B d^2+a^6 C d^2+3 a^4 b^2 d (B c+2 A d-C d)+b^6 \left(c (c C-B d)-A \left(c^2-d^2\right)\right)-\right.$$
$$\left.a^3 b^3 \left(8 c (A-C) d+B \left(c^2-d^2\right)\right)-3 a^2 b^4 \left(c (c C+2 B d)-A \left(c^2+d^2\right)\right)\right) \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]-$$
$$\frac{d^2 \left(c^2 C-B c d+A d^2\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]}{(b c-a d)^3 \left(c^2+d^2\right) f}-\frac{A b^2-a (b B-a C)}{2 \left(a^2+b^2\right) (b c-a d) f (a+b \text{Tan}[e+f x])^2}-$$
$$\frac{2 a b^3 c (A-C)+2 a^3 b B d-a^4 C d+b^4 (B c-A d)-a^2 b^2 (B c+3 A d-C d)}{\left(a^2+b^2\right)^2 (b c-a d)^2 f (a+b \text{Tan}[e+f x])}$$

Result (type 3, 7731 leaves) :

$$\begin{aligned}
&\Big(\Big(-3 a^9 A b^5 c^8+3 i a^8 A b^6 c^8-5 a^7 A b^7 c^8+5 i a^6 A b^8 c^8-a^5 A b^9 c^8+i a^4 A b^{10} c^8+a^3 A b^{11} c^8-i a^2 A b^{12} c^8+a^{10} b^4 B c^8-i a^9 b^5 B c^8-a^8 b^6 B c^8+\\
&\quad i a^7 b^7 B c^8-5 a^6 b^8 B c^8+5 i a^5 b^9 B c^8-3 a^4 b^{10} B c^8+3 i a^3 b^{11} B c^8+3 a^9 b^5 c^8 C-3 i a^8 b^6 c^8 C+5 a^7 b^7 c^8 C-5 i a^6 b^8 c^8 C+\\
&\quad a^5 b^9 c^8 C-i a^4 b^{10} c^8 C-a^3 b^{11} c^8 C+i a^2 b^{12} c^8 C+11 a^{10} A b^4 c^7 d-8 i a^9 A b^5 c^7 d+24 a^8 A b^6 c^7 d-16 i a^7 A b^7 c^7 d+14 a^6 A b^8 c^7 d-\\
&\quad 8 i a^5 A b^9 c^7 d-a^2 A b^{12} c^7 d-4 a^{11} b^3 B c^7 d+3 i a^{10} b^4 B c^7 d+16 a^7 b^7 B c^7 d-10 i a^6 b^8 B c^7 d+16 a^5 b^9 B c^7 d-8 i a^4 b^{10} B c^7 d+\\
&\quad 4 a^3 b^{11} B c^7 d-i a^2 b^{12} B c^7 d-11 a^{10} b^4 c^7 C d+8 i a^9 b^5 c^7 C d-24 a^8 b^6 c^7 C d+16 i a^7 b^7 c^7 C d-14 a^6 b^8 c^7 C d+8 i a^5 b^9 c^7 C d+\\
&\quad a^2 b^{12} c^7 C d-14 a^{11} A b^3 c^6 d^2+3 i a^{10} A b^4 c^6 d^2-45 a^9 A b^5 c^6 d^2+13 i a^8 A b^6 c^6 d^2-47 a^7 A b^7 c^6 d^2+17 i a^6 A b^8 c^6 d^2-15 a^5 A b^9 c^6 d^2+\\
&\quad 7 i a^4 A b^{10} c^6 d^2+a^3 A b^{11} c^6 d^2+6 a^{12} b^2 B c^6 d^2-2 i a^{11} b^3 B c^6 d^2+10 a^{10} b^4 B c^6 d^2-7 i a^9 b^5 B c^6 d^2-11 a^8 b^6 B c^6 d^2-5 i a^7 b^7 B c^6 d^2-\\
&\quad 29 a^6 b^8 B c^6 d^2+3 i a^5 b^9 B c^6 d^2-15 a^4 b^{10} B c^6 d^2+3 i a^3 b^{11} B c^6 d^2-a^2 b^{12} B c^6 d^2+14 a^{11} b^3 c^6 C d^2-3 i a^{10} b^4 c^6 C d^2+45 a^9 b^5 c^6 C d^2-\\
&\quad 13 i a^8 b^6 c^6 C d^2+47 a^7 b^7 c^6 C d^2-17 i a^6 b^8 c^6 C d^2+15 a^5 b^9 c^6 C d^2-7 i a^4 b^{10} c^6 C d^2-a^3 b^{11} c^6 C d^2+6 a^{12} A b^2 c^5 d^3+8 i a^{11} A b^3 c^5 d^3+\\
&\quad 40 a^{10} A b^4 c^5 d^3+8 i a^9 A b^5 c^5 d^3+68 a^8 A b^6 c^5 d^3-8 i a^7 A b^7 c^5 d^3+40 a^6 A b^8 c^5 d^3-8 i a^5 A b^9 c^5 d^3+6 a^4 A b^{10} c^5 d^3-4 a^{13} b B c^5 d^3-\\
&\quad 2 i a^{12} b^2 B c^5 d^3-20 a^{11} b^3 B c^5 d^3+8 i a^{10} b^4 B c^5 d^3-16 a^9 b^5 B c^5 d^3+20 i a^8 b^6 B c^5 d^3+16 a^7 b^7 B c^5 d^3+8 i a^6 b^8 B c^5 d^3+\\
&\quad 20 a^5 b^9 B c^5 d^3-2 i a^4 b^{10} B c^5 d^3+4 a^3 b^{11} B c^5 d^3-6 a^{12} b^2 c^5 C d^3-8 i a^{11} b^3 c^5 C d^3-40 a^{10} b^4 c^5 C d^3-8 i a^9 b^5 c^5 C d^3-68 a^8 b^6 c^5 C d^3+\\
&\quad 8 i a^7 b^7 c^5 C d^3-40 a^6 b^8 c^5 C d^3+8 i a^5 b^9 c^5 C d^3-6 a^4 b^{10} c^5 C d^3+a^{13} A b c^4 d^4-7 i a^{12} A b^2 c^4 d^4-15 a^{11} A b^3 c^4 d^4-17 i a^{10} A b^4 c^4 d^4-\\
&\quad 47 a^9 A b^5 c^4 d^4-13 i a^8 A b^6 c^4 d^4-45 a^7 A b^7 c^4 d^4-3 i a^6 A b^8 c^4 d^4-14 a^5 A b^9 c^4 d^4+a^{14} B c^4 d^4+3 i a^{13} b B c^4 d^4+15 a^{12} b^2 B c^4 d^4+\\
&\quad 3 i a^{11} b^3 B c^4 d^4+29 a^{10} b^4 B c^4 d^4-5 i a^9 b^5 B c^4 d^4+11 a^8 b^6 B c^4 d^4-7 i a^7 b^7 B c^4 d^4-10 a^6 b^8 B c^4 d^4-2 i a^5 b^9 B c^4 d^4-\\
&\quad 6 a^4 b^{10} B c^4 d^4-a^{13} b c^4 C d^4+7 i a^{12} b^2 c^4 C d^4+15 a^{11} b^3 c^4 C d^4+17 i a^{10} b^4 c^4 C d^4+47 a^9 b^5 c^4 C d^4+13 i a^8 b^6 c^4 C d^4+45 a^7 b^7 c^4 C d^4+\\
&\quad 3 i a^6 b^8 c^4 C d^4+14 a^5 b^9 c^4 C d^4-a^{14} A c^3 d^5+8 i a^{11} A b^3 c^3 d^5+14 a^{10} A b^4 c^3 d^5+16 i a^9 A b^5 c^3 d^5+24 a^8 A b^6 c^3 d^5+8 i a^7 A b^7 c^3 d^5+\\
&\quad 11 a^6 A b^8 c^3 d^5-i a^{14} B c^3 d^5-4 a^{13} b B c^3 d^5-8 i a^{12} b^2 B c^3 d^5-16 a^{11} b^3 B c^3 d^5-10 i a^{10} b^4 B c^3 d^5-16 a^9 b^5 B c^3 d^5+3 i a^6 b^8 B c^3 d^5+\\
&\quad 4 a^5 b^9 B c^3 d^5+a^{14} c^3 C d^5-8 i a^{11} b^3 c^3 C d^5-14 a^{10} b^4 c^3 C d^5-16 i a^9 b^5 c^3 C d^5-24 a^8 b^6 c^3 C d^5-8 i a^7 b^7 c^3 C d^5-11 a^6 b^8 c^3 C d^5+\\
&\quad i a^{14} A c^2 d^6+a^{13} A b c^2 d^6-i a^{12} A b^2 c^2 d^6-a^{11} A b^3 c^2 d^6-5 i a^{10} A b^4 c^2 d^6-5 a^9 A b^5 c^2 d^6-3 i a^8 A b^6 c^2 d^6-3 a^7 A b^7 c^2 d^6+\\
&\quad 3 i a^{13} b B c^2 d^6+3 a^{12} b^2 B c^2 d^6+5 i a^{11} b^3 B c^2 d^6+5 a^{10} b^4 B c^2 d^6+i a^9 b^5 B c^2 d^6+a^8 b^6 B c^2 d^6-i a^7 b^7 B c^2 d^6-a^6 b^8 B c^2 d^6-\\
&\quad i a^{14} c^2 C d^6-a^{13} b c^2 C d^6+i a^{12} b^2 c^2 C d^6+a^{11} b^3 c^2 C d^6+5 i a^{10} b^4 c^2 C d^6+5 a^9 b^5 c^2 C d^6+3 i a^8 b^6 c^2 C d^6+3 a^7 b^7 c^2 C d^6\Big)\\
&\quad (e+f x) \text{Sec}[e+f x]^4 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\Big)\Big/\\
&\Big(a^2 (a-i b)^6 (a+i b)^5 c^2 (c-i d) (c+i d) (i c+d) (-b c+a d)^4 f (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])\Big)-
\end{aligned}$$

$$\frac{1}{\left(a^2+b^2\right)^3 (-b c+a d)^3 f (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])}$$
$$\begin{aligned}
&i \Big(-3 a^2 A b^4 c^2+A b^6 c^2+a^3 b^3 B c^2-3 a b^5 B c^2+3 a^2 b^4 c^2 C-b^6 c^2 C+8 a^3 A b^3 c d-3 a^4 b^2 B c d+\\
&\quad 6 a^2 b^4 B c d+b^6 B c d-8 a^3 b^3 c C d-6 a^4 A b^2 d^2-3 a^2 A b^4 d^2-A b^6 d^2+3 a^5 b B d^2-a^3 b^3 B d^2-a^6 C d^2+3 a^4 b^2 C d^2\Big)
\end{aligned}$$

$$\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^4\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])+$$

$$\left(i\left(c^2 C d^2-B c d^3+A d^4\right)\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^4\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right)\Big/$$

$$\left((b c-a d)^3\left(c^2+d^2\right) f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])\right)+$$

$$\frac{1}{2\left(a^2+b^2\right)^3(-b c+a d)^3 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])}$$

$$\left(-3 a^2 A b^4 c^2+A b^6 c^2+a^3 b^3 B c^2-3 a b^5 B c^2+3 a^2 b^4 c^2 C-b^6 c^2 C+8 a^3 A b^3 c d-3 a^4 b^2 B c d+6 a^2 b^4 B c d+\right.$$

$$\left.b^6 B c d-8 a^3 b^3 c C d-6 a^4 A b^2 d^2-3 a^2 A b^4 d^2-A b^6 d^2+3 a^5 b B d^2-a^3 b^3 B d^2-a^6 C d^2+3 a^4 b^2 C d^2\right)$$

$$\text{Log}\left[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^4\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])-$$

$$\left(\left(c^2 C d^2-B c d^3+A d^4\right)\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^4\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right)\Big/$$

$$\left(2\,(b c-a d)^3\left(c^2+d^2\right) f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])\right)+$$

$$\left(\text{Sec}[e+f x]^4\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\right.$$

$$\left(2 a^3 A b^5 c^3+2 a A b^7 c^3-a^4 b^4 B c^3+b^8 B c^3-2 a^3 b^5 c^3 C-2 a b^7 c^3 C-3 a^4 A b^4 c^2 d-4 a^2 A b^6 c^2 d-A b^8 c^2 d+2 a^5 b^3 B c^2 d+\right.$$

$$2 a^3 b^5 B c^2 d-a^6 b^2 c^2 C d+a^2 b^6 c^2 C d+2 a^3 A b^5 c d^2+2 a A b^7 c d^2-a^4 b^4 B c d^2+b^8 B c d^2-2 a^3 b^5 c C d^2-2 a b^7 c C d^2-$$

$$3 a^4 A b^4 d^3-4 a^2 A b^6 d^3-A b^8 d^3+2 a^5 b^3 B d^3+2 a^3 b^5 B d^3-a^6 b^2 C d^3+a^2 b^6 C d^3+a^6 A b^2 c^3 (e+f x)-2 a^4 A b^4 c^3 (e+f x)-$$

$$3 a^2 A b^6 c^3 (e+f x)+3 a^5 b^3 B c^3 (e+f x)+2 a^3 b^5 B c^3 (e+f x)-a b^7 B c^3 (e+f x)-a^6 b^2 c^3 C (e+f x)+2 a^4 b^4 c^3 C (e+f x)+$$

$$3 a^2 b^6 c^3 C (e+f x)-2 a^7 A b c^2 d (e+f x)+a^5 A b^3 c^2 d (e+f x)+4 a^3 A b^5 c^2 d (e+f x)+a A b^7 c^2 d (e+f x)-5 a^6 b^2 B c^2 d (e+f x)-$$

$$6 a^4 b^4 B c^2 d (e+f x)-a^2 b^6 B c^2 d (e+f x)+2 a^7 b c^2 C d (e+f x)-a^5 b^3 c^2 C d (e+f x)-4 a^3 b^5 c^2 C d (e+f x)-a b^7 c^2 C d (e+f x)+$$

$$a^8 A c d^2 (e+f x)+4 a^6 A b^2 c d^2 (e+f x)+a^4 A b^4 c d^2 (e+f x)-2 a^2 A b^6 c d^2 (e+f x)+a^7 b B c d^2 (e+f x)+6 a^5 b^3 B c d^2 (e+f x)+$$

$$5 a^3 b^5 B c d^2 (e+f x)-a^8 c C d^2 (e+f x)-4 a^6 b^2 c C d^2 (e+f x)-a^4 b^4 c C d^2 (e+f x)+2 a^2 b^6 c C d^2 (e+f x)-3 a^7 A b d^3 (e+f x)-$$

$$2 a^5 A b^3 d^3 (e+f x)+a^3 A b^5 d^3 (e+f x)+a^8 B d^3 (e+f x)-2 a^6 b^2 B d^3 (e+f x)-3 a^4 b^4 B d^3 (e+f x)+3 a^7 b C d^3 (e+f x)+$$

$$2 a^5 b^3 C d^3 (e+f x)-a^3 b^5 C d^3 (e+f x)-3 a^3 A b^5 c^3 \text{Cos}[2 (e+f x)]-3 a A b^7 c^3 \text{Cos}[2 (e+f x)]+2 a^4 b^4 B c^3 \text{Cos}[2 (e+f x)]+$$

$$a^2 b^6 B c^3 \text{Cos}[2 (e+f x)]-b^8 B c^3 \text{Cos}[2 (e+f x)]-a^5 b^3 c^3 C \text{Cos}[2 (e+f x)]+a^3 b^5 c^3 C \text{Cos}[2 (e+f x)]+2 a b^7 c^3 C \text{Cos}[2 (e+f x)]+$$

$$4 a^4 A b^4 c^2 d \text{Cos}[2 (e+f x)]+5 a^2 A b^6 c^2 d \text{Cos}[2 (e+f x)]+A b^8 c^2 d \text{Cos}[2 (e+f x)]-3 a^5 b^3 B c^2 d \text{Cos}[2 (e+f x)]-$$

$$3 a^3 b^5 B c^2 d \text{Cos}[2 (e+f x)]+2 a^6 b^2 c^2 C d \text{Cos}[2 (e+f x)]+a^4 b^4 c^2 C d \text{Cos}[2 (e+f x)]-a^2 b^6 c^2 C d \text{Cos}[2 (e+f x)]-$$

$$3 a^3 A b^5 c d^2 \text{Cos}[2 (e+f x)]-3 a A b^7 c d^2 \text{Cos}[2 (e+f x)]+2 a^4 b^4 B c d^2 \text{Cos}[2 (e+f x)]+a^2 b^6 B c d^2 \text{Cos}[2 (e+f x)]-$$

$$b^8 B c d^2 \text{Cos}[2 (e+f x)]-a^5 b^3 c C d^2 \text{Cos}[2 (e+f x)]+a^3 b^5 c C d^2 \text{Cos}[2 (e+f x)]+2 a b^7 c C d^2 \text{Cos}[2 (e+f x)]+$$

$$4 a^4 A b^4 d^3 \text{Cos}[2 (e+f x)]+5 a^2 A b^6 d^3 \text{Cos}[2 (e+f x)]+A b^8 d^3 \text{Cos}[2 (e+f x)]-3 a^5 b^3 B d^3 \text{Cos}[2 (e+f x)]-3 a^3 b^5 B d^3 \text{Cos}[2 (e+f x)]+$$

$$2 a^6 b^2 C d^3 \text{Cos}[2 (e+f x)]+a^4 b^4 C d^3 \text{Cos}[2 (e+f x)]-a^2 b^6 C d^3 \text{Cos}[2 (e+f x)]+a^6 A b^2 c^3 (e+f x) \text{Cos}[2 (e+f x)]-$$

$$4 a^4 A b^4 c^3 (e+f x) \text{Cos}[2 (e+f x)]+3 a^2 A b^6 c^3 (e+f x) \text{Cos}[2 (e+f x)]+3 a^5 b^3 B c^3 (e+f x) \text{Cos}[2 (e+f x)]-$$

$$4 a^3 b^5 B c^3 (e+f x) \text{Cos}[2 (e+f x)]+a b^7 B c^3 (e+f x) \text{Cos}[2 (e+f x)]-a^6 b^2 c^3 C (e+f x) \text{Cos}[2 (e+f x)]+$$

$$4 a^4 b^4 c^3 C (e+f x) \text{Cos}[2 (e+f x)]-3 a^2 b^6 c^3 C (e+f x) \text{Cos}[2 (e+f x)]-2 a^7 A b c^2 d (e+f x) \text{Cos}[2 (e+f x)]+$$

$$5 a^5 A b^3 c^2 d (e+f x) \text{Cos}[2 (e+f x)]-2 a^3 A b^5 c^2 d (e+f x) \text{Cos}[2 (e+f x)]-a A b^7 c^2 d (e+f x) \text{Cos}[2 (e+f x)]-$$

$$5 a^6 b^2 B c^2 d (e+f x) \text{Cos}[2 (e+f x)]+4 a^4 b^4 B c^2 d (e+f x) \text{Cos}[2 (e+f x)]+a^2 b^6 B c^2 d (e+f x) \text{Cos}[2 (e+f x)]+$$

$$2 a^7 b c^2 C d (e+f x) \text{Cos}[2 (e+f x)]-5 a^5 b^3 c^2 C d (e+f x) \text{Cos}[2 (e+f x)]+2 a^3 b^5 c^2 C d (e+f x) \text{Cos}[2 (e+f x)]+$$

$$a b^7 c^2 C d (e+f x) \text{Cos}[2 (e+f x)]+a^8 A c d^2 (e+f x) \text{Cos}[2 (e+f x)]+2 a^6 A b^2 c d^2 (e+f x) \text{Cos}[2 (e+f x)]-$$

$$5 a^4 A b^4 c d^2 (e+f x) \text{Cos}[2 (e+f x)]+2 a^2 A b^6 c d^2 (e+f x) \text{Cos}[2 (e+f x)]+a^7 b B c d^2 (e+f x) \text{Cos}[2 (e+f x)]+$$

$$4 a^5 b^3 B c d^2 (e+f x) \text{Cos}[2 (e+f x)]-5 a^3 b^5 B c d^2 (e+f x) \text{Cos}[2 (e+f x)]-a^8 c C d^2 (e+f x) \text{Cos}[2 (e+f x)]-$$

$$2 a^6 b^2 c C d^2 (e+f x) \text{Cos}[2 (e+f x)]+5 a^4 b^4 c C d^2 (e+f x) \text{Cos}[2 (e+f x)]-2 a^2 b^6 c C d^2 (e+f x) \text{Cos}[2 (e+f x)]-$$

$$3 a^7 A b d^3 (e+f x) \text{Cos}[2 (e+f x)]+4 a^5 A b^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]-a^3 A b^5 d^3 (e+f x) \text{Cos}[2 (e+f x)]+$$

$$a^8 B d^3 (e+f x) \text{Cos}[2 (e+f x)]-4 a^6 b^2 B d^3 (e+f x) \text{Cos}[2 (e+f x)]+3 a^4 b^4 B d^3 (e+f x) \text{Cos}[2 (e+f x)]+$$

$$3 a^7 b C d^3 (e+f x) \text{Cos}[2 (e+f x)]-4 a^5 b^3 C d^3 (e+f x) \text{Cos}[2 (e+f x)]+a^3 b^5 C d^3 (e+f x) \text{Cos}[2 (e+f x)]+3 a^4 A b^4 c^3 \text{Sin}[2 (e+f x)]+$$

$$3 a^2 A b^6 c^3 \text{Sin}[2 (e+f x)]-2 a^5 b^3 B c^3 \text{Sin}[2 (e+f x)]-a^3 b^5 B c^3 \text{Sin}[2 (e+f x)]+a b^7 B c^3 \text{Sin}[2 (e+f x)]+$$

$a^6 b^2 c^3 C \operatorname{Sin}[2 (e+f x)] - a^4 b^4 c^3 C \operatorname{Sin}[2 (e+f x)] - 2 a^2 b^6 c^3 C \operatorname{Sin}[2 (e+f x)] - 4 a^5 A b^3 c^2 d \operatorname{Sin}[2 (e+f x)] -$
$5 a^3 A b^5 c^2 d \operatorname{Sin}[2 (e+f x)] - a A b^7 c^2 d \operatorname{Sin}[2 (e+f x)] + 3 a^6 b^2 B c^2 d \operatorname{Sin}[2 (e+f x)] + 3 a^4 b^4 B c^2 d \operatorname{Sin}[2 (e+f x)] -$
$2 a^7 b c^2 C d \operatorname{Sin}[2 (e+f x)] - a^5 b^3 c^2 C d \operatorname{Sin}[2 (e+f x)] + a^3 b^5 c^2 C d \operatorname{Sin}[2 (e+f x)] + 3 a^4 A b^4 c d^2 \operatorname{Sin}[2 (e+f x)] +$
$3 a^2 A b^6 c d^2 \operatorname{Sin}[2 (e+f x)] - 2 a^5 b^3 B c d^2 \operatorname{Sin}[2 (e+f x)] - a^3 b^5 B c d^2 \operatorname{Sin}[2 (e+f x)] + a b^7 B c d^2 \operatorname{Sin}[2 (e+f x)] +$
$a^6 b^2 c C d^2 \operatorname{Sin}[2 (e+f x)] - a^4 b^4 c C d^2 \operatorname{Sin}[2 (e+f x)] - 2 a^2 b^6 c C d^2 \operatorname{Sin}[2 (e+f x)] - 4 a^5 A b^3 d^3 \operatorname{Sin}[2 (e+f x)] -$
$5 a^3 A b^5 d^3 \operatorname{Sin}[2 (e+f x)] - a A b^7 d^3 \operatorname{Sin}[2 (e+f x)] + 3 a^6 b^2 B d^3 \operatorname{Sin}[2 (e+f x)] + 3 a^4 b^4 B d^3 \operatorname{Sin}[2 (e+f x)] -$
$2 a^7 b C d^3 \operatorname{Sin}[2 (e+f x)] - a^5 b^3 C d^3 \operatorname{Sin}[2 (e+f x)] + a^3 b^5 C d^3 \operatorname{Sin}[2 (e+f x)] + 2 a^5 A b^3 c^3 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$6 a^3 A b^5 c^3 (e+f x) \operatorname{Sin}[2 (e+f x)] + 6 a^4 b^4 B c^3 (e+f x) \operatorname{Sin}[2 (e+f x)] - 2 a^2 b^6 B c^3 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$2 a^5 b^3 c^3 C (e+f x) \operatorname{Sin}[2 (e+f x)] + 6 a^3 b^5 c^3 C (e+f x) \operatorname{Sin}[2 (e+f x)] - 4 a^6 A b^2 c^2 d (e+f x) \operatorname{Sin}[2 (e+f x)] +$
$6 a^4 A b^4 c^2 d (e+f x) \operatorname{Sin}[2 (e+f x)] + 2 a^2 A b^6 c^2 d (e+f x) \operatorname{Sin}[2 (e+f x)] - 10 a^5 b^3 B c^2 d (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$2 a^3 b^5 B c^2 d (e+f x) \operatorname{Sin}[2 (e+f x)] + 4 a^6 b^2 c^2 C d (e+f x) \operatorname{Sin}[2 (e+f x)] - 6 a^4 b^4 c^2 C d (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$2 a^2 b^6 c^2 C d (e+f x) \operatorname{Sin}[2 (e+f x)] + 2 a^7 A b c d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] + 6 a^5 A b^3 c d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$4 a^3 A b^5 c d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] + 2 a^6 b^2 B c d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] + 10 a^4 b^4 B c d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$2 a^7 b c C d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] - 6 a^5 b^3 c C d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] + 4 a^3 b^5 c C d^2 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$6 a^6 A b^2 d^3 (e+f x) \operatorname{Sin}[2 (e+f x)] + 2 a^4 A b^4 d^3 (e+f x) \operatorname{Sin}[2 (e+f x)] + 2 a^7 b B d^3 (e+f x) \operatorname{Sin}[2 (e+f x)] -$
$6 a^5 b^3 B d^3 (e+f x) \operatorname{Sin}[2 (e+f x)] + 6 a^6 b^2 C d^3 (e+f x) \operatorname{Sin}[2 (e+f x)] - 2 a^4 b^4 C d^3 (e+f x) \operatorname{Sin}[2 (e+f x)]\big)\big)\big) \Big/$
$\left(2 a (a - i b)^3 (a + i b)^3 (-b c + a d)^2 \left(c^2+d^2\right) f (a + b \operatorname{Tan}[e+f x])^3 (c + d \operatorname{Tan}[e+f x])\right)$

- **Problem 77: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b \operatorname{Tan}[e+f x])^3 \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{(c+d \operatorname{Tan}[e+f x])^2}\, dx$$

Optimal (type 3, 579 leaves, 7 steps):

$$-\frac{1}{\left(c^2+d^2\right)^2}\left(a^3 \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)-3 a b^2 \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)-3 a^2 b \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)+b^3 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) x+$$
$$\frac{1}{\left(c^2+d^2\right)^2 f}\left(3 a^2 b \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)-b^3 \left(c^2 C-2 B c d-C d^2-A \left(c^2-d^2\right)\right)+\right.$$
$$\left.a^3 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)-3 a b^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]+\frac{1}{d^4 \left(c^2+d^2\right)^2 f}$$
$$(b c-a d)^2 \left(b \left(3 c^4 C-2 B c^3 d+c^2 (A+5 C) d^2-4 B c d^3+3 A d^4\right)+a d^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) \operatorname{Log}[c+d \operatorname{Tan}[e+f x]]+$$
$$\frac{b^2 \left(a d \left(3 c^2 C-B c d+(A+2 C) d^2\right)-b \left(3 c^3 C-2 B c^2 d+c (A+2 C) d^2-B d^3\right)\right) \operatorname{Tan}[e+f x]}{d^3 \left(c^2+d^2\right) f}+$$
$$\frac{b \left(3 c^2 C-2 B c d+(2 A+C) d^2\right) (a+b \operatorname{Tan}[e+f x])^2}{2 d^2 \left(c^2+d^2\right) f}-\frac{\left(c^2 C-B c d+A d^2\right) (a+b \operatorname{Tan}[e+f x])^3}{d \left(c^2+d^2\right) f (c+d \operatorname{Tan}[e+f x])}$$

Result (type 3, 2463 leaves):

$$\Big(\big(a^3 A c^2-3 a A b^2 c^2-3 a^2 b B c^2+b^3 B c^2-a^3 c^2 C+3 a b^2 c^2 C+6 a^2 A b c d-2 A b^3 c d+2 a^3 B c d-6 a b^2 B c d-6 a^2 b c C d+2 b^3 c C d-a^3 A d^2+$$
$$3 a A b^2 d^2+3 a^2 b B d^2-b^3 B d^2+a^3 C d^2-3 a b^2 C d^2\big)\,(e+f x)\,\text{Cos}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big((c-i d)^2\,(c+i d)^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big(\big(3 i b^3 c^{11} C d^3-2 i b^3 B c^{10} d^4-6 i a b^2 c^{10} C d^4+3 b^3 c^{10} C d^4+i A b^3 c^9 d^5+3 i a b^2 B c^9 d^5-2 b^3 B c^9 d^5+3 i a^2 b c^9 C d^5-6 a b^2 c^9 C d^5+$$
$$8 i b^3 c^9 C d^5+A b^3 c^8 d^6+3 a b^2 B c^8 d^6-6 i b^3 B c^8 d^6+3 a^2 b c^8 C d^6-18 i a b^2 c^8 C d^6+8 b^3 c^8 C d^6-3 i a^2 A b c^7 d^7+4 i A b^3 c^7 d^7-$$
$$i a^3 B c^7 d^7+12 i a b^2 B c^7 d^7-6 b^3 B c^7 d^7+12 i a^2 b c^7 C d^7-18 a b^2 c^7 C d^7+5 i b^3 c^7 C d^7+2 i a^3 A c^6 d^8-3 a^2 A b c^6 d^8-$$
$$6 i a A b^2 c^6 d^8+4 A b^3 c^6 d^8-a^3 B c^6 d^8-6 i a^2 b B c^6 d^8+12 a b^2 B c^6 d^8-4 i b^3 B c^6 d^8-2 i a^3 c^6 C d^8+12 a^2 b c^6 C d^8-$$
$$12 i a b^2 c^6 C d^8+5 b^3 c^6 C d^8+2 a^3 A c^5 d^9-6 a A b^2 c^5 d^9+3 i A b^3 c^5 d^9-6 a^2 b B c^5 d^9+9 i a b^2 B c^5 d^9-4 b^3 B c^5 d^9-2 a^3 c^5 C d^9+$$
$$9 i a^2 b c^5 C d^9-12 a b^2 c^5 C d^9+2 i a^3 A c^4 d^{10}-6 i a A b^2 c^4 d^{10}+3 A b^3 c^4 d^{10}-6 i a^2 b B c^4 d^{10}+9 a b^2 B c^4 d^{10}-2 i a^3 c^4 C d^{10}+$$
$$9 a^2 b c^4 C d^{10}+2 a^3 A c^3 d^{11}+3 i a^2 A b c^3 d^{11}-6 a A b^2 c^3 d^{11}+i a^3 B c^3 d^{11}-6 a^2 b B c^3 d^{11}-2 a^3 c^3 C d^{11}+3 a^2 A b c^2 d^{12}+a^3 B c^2 d^{12}\big)$$
$$(e+f x)\,\text{Cos}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(c^2\,(c-i d)^4\,(c+i d)^3\,d^7\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\Big)-$$
$$\frac{1}{d^4\,\left(c^2+d^2\right)^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2}$$
$$i\,\big(3 b^3 c^6 C-2 b^3 B c^5 d-6 a b^2 c^5 C d+A b^3 c^4 d^2+3 a b^2 B c^4 d^2+3 a^2 b c^4 C d^2+5 b^3 c^4 C d^2-4 b^3 B c^3 d^3-12 a b^2 c^3 C d^3-3 a^2 A b c^2 d^4+$$
$$3 A b^3 c^2 d^4-a^3 B c^2 d^4+9 a b^2 B c^2 d^4+9 a^2 b c^2 C d^4+2 a^3 A c d^5-6 a A b^2 c d^5-6 a^2 b B c d^5-2 a^3 c C d^5+3 a^2 A b d^6+a^3 B d^6\big)$$
$$\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Cos}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3+$$
$$\Big(\big(-3 b^3 c^2 C+2 b^3 B c d+6 a b^2 c C d-A b^3 d^2-3 a b^2 B d^2-3 a^2 b C d^2+b^3 C d^2\big)\,\text{Cos}[e+f x]\,\text{Log}[\text{Cos}[e+f x]]$$
$$(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3\Big)\Big/\Big(d^4 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$
$$\frac{1}{2 d^4\,\left(c^2+d^2\right)^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2}$$
$$\big(3 b^3 c^6 C-2 b^3 B c^5 d-6 a b^2 c^5 C d+A b^3 c^4 d^2+3 a b^2 B c^4 d^2+3 a^2 b c^4 C d^2+5 b^3 c^4 C d^2-4 b^3 B c^3 d^3-12 a b^2 c^3 C d^3-3 a^2 A b c^2 d^4+$$
$$3 A b^3 c^2 d^4-a^3 B c^2 d^4+9 a b^2 B c^2 d^4+9 a^2 b c^2 C d^4+2 a^3 A c d^5-6 a A b^2 c d^5-6 a^2 b B c d^5-2 a^3 c C d^5+3 a^2 A b d^6+a^3 B d^6\big)$$
$$\text{Cos}[e+f x]\,\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right](c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3+$$
$$\frac{b^3 C\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^3}{2 d^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2}+$$
$$\Big((c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,\big(-2 b^3 c C\,\text{Sin}[e+f x]+b^3 B d\,\text{Sin}[e+f x]+3 a b^2 C d\,\text{Sin}[e+f x]\big)\,(a+b\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(d^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$
$$\Big(\text{Cos}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,\big(-b^3 c^5 C\,\text{Sin}[e+f x]+b^3 B c^4 d\,\text{Sin}[e+f x]+3 a b^2 c^4 C d\,\text{Sin}[e+f x]-$$
$$A b^3 c^3 d^2\,\text{Sin}[e+f x]-3 a b^2 B c^3 d^2\,\text{Sin}[e+f x]-3 a^2 b c^3 C d^2\,\text{Sin}[e+f x]+3 a A b^2 c^2 d^3\,\text{Sin}[e+f x]+3 a^2 b B c^2 d^3\,\text{Sin}[e+f x]+$$
$$a^3 c^2 C d^3\,\text{Sin}[e+f x]-3 a^2 A b c d^4\,\text{Sin}[e+f x]-a^3 B c d^4\,\text{Sin}[e+f x]+a^3 A d^5\,\text{Sin}[e+f x]\big)\,(a+b\,\text{Tan}[e+f x])^3\Big)\Big/$$
$$\Big(c\,(c-i d)\,(c+i d)\,d^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\Big)$$

- **Problem 78: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[e+f x])^2\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 417 leaves, 6 steps):

$$-\frac{1}{\left(c^2+d^2\right)^2}\left(a^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-2 a b\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) x+\frac{1}{\left(c^2+d^2\right)^2 f}$$

$$\left(2 a b\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)+a^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)-b^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) \operatorname{Log}[\operatorname{Cos}[e+f x]]-$$

$$\frac{1}{d^3\left(c^2+d^2\right)^2 f}(b c-a d)\left(b\left(2 c^4 C-B c^3 d+4 c^2 C d^2-3 B c d^3+2 A d^4\right)+a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) \operatorname{Log}[c+d \operatorname{Tan}[e+f x]]+$$

$$\frac{b^2\left(2 c^2 C-B c d+(A+C) d^2\right) \operatorname{Tan}[e+f x]}{d^2\left(c^2+d^2\right) f}-\frac{\left(c^2 C-B c d+A d^2\right)(a+b \operatorname{Tan}[e+f x])^2}{d\left(c^2+d^2\right) f(c+d \operatorname{Tan}[e+f x])}$$

Result (type 3, 2636 leaves) :

$$
\begin{aligned}
&\Big(\big(-2\,\mathrm{i}\,b^2 c^{10} C d^2+\mathrm{i}\,b^2 B c^9 d^3+2\,\mathrm{i}\,a b c^9 C d^3-2 b^2 c^9 C d^3+b^2 B c^8 d^4+2 a b c^8 C d^4-6\,\mathrm{i}\,b^2 c^8 C d^4-2\,\mathrm{i}\,a A b c^7 d^5-\mathrm{i}\,a^2 B c^7 d^5+4\,\mathrm{i}\,b^2 B c^7 d^5+\\
&\quad 8\,\mathrm{i}\,a b c^7 C d^5-6 b^2 c^7 C d^5+2\,\mathrm{i}\,a^2 A c^6 d^6-2 a A b c^6 d^6-2\,\mathrm{i}\,A b^2 c^6 d^6-a^2 B c^6 d^6-4\,\mathrm{i}\,a b B c^6 d^6+4 b^2 B c^6 d^6-2\,\mathrm{i}\,a^2 c^6 C d^6+\\
&\quad 8 a b c^6 C d^6-4\,\mathrm{i}\,b^2 c^6 C d^6+2 a^2 A c^5 d^7-2 A b^2 c^5 d^7-4 a b B c^5 d^7+3\,\mathrm{i}\,b^2 B c^5 d^7-2 a^2 c^5 C d^7+6\,\mathrm{i}\,a b c^5 C d^7-4 b^2 c^5 C d^7+\\
&\quad 2\,\mathrm{i}\,a^2 A c^4 d^8-2\,\mathrm{i}\,A b^2 c^4 d^8-4\,\mathrm{i}\,a b B c^4 d^8+3 b^2 B c^4 d^8-2\,\mathrm{i}\,a^2 c^4 C d^8+6 a b c^4 C d^8+2 a^2 A c^3 d^9+2\,\mathrm{i}\,a A b c^3 d^9-2 A b^2 c^3 d^9+\\
&\quad \mathrm{i}\,a^2 B c^3 d^9-4 a b B c^3 d^9-2 a^2 c^3 C d^9+2 a A b c^2 d^{10}+a^2 B c^2 d^{10}\big)\,(e+f x)\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\\
&\Big(c^2\,(c-\mathrm{i}\,d)^4\,(c+\mathrm{i}\,d)^3\,d^5\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)-\\
&\Big(\mathrm{i}\,\big(-2 b^2 c^5 C+b^2 B c^4 d+2 a b c^4 C d-4 b^2 c^3 C d^2-2 a A b c^2 d^3-a^2 B c^2 d^3+3 b^2 B c^2 d^3+6 a b c^2 C d^3+2 a^2 A c d^4-2 A b^2 c d^4-\\
&\quad 4 a b B c d^4-2 a^2 c C d^4+2 a A b d^5+a^2 B d^5\big)\,\text{ArcTan}[\text{Tan}[e+f x]]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\\
&\Big(d^3\,(c^2+d^2)^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)+\\
&\frac{\big(2 b^2 c C-b^2 B d-2 a b C d\big)\,\text{Log}[\text{Cos}[e+f x]]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2}{d^3\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2}+\\
&\Big(\big(-2 b^2 c^5 C+b^2 B c^4 d+2 a b c^4 C d-4 b^2 c^3 C d^2-2 a A b c^2 d^3-a^2 B c^2 d^3+3 b^2 B c^2 d^3+6 a b c^2 C d^3+2 a^2 A c d^4-2 A b^2 c d^4-4 a b B c d^4-\\
&\quad 2 a^2 c C d^4+2 a A b d^5+a^2 B d^5\big)\,\text{Log}\big[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\big]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\\
&\Big(2\,d^3\,(c^2+d^2)^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)+\\
&\Big(\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,\big(b^2 c^5 C d+2 b^2 c^3 C d^3+b^2 c C d^5+a^2 A c^4 d^2\,(e+f x)-A b^2 c^4 d^2\,(e+f x)-2 a b B c^4 d^2\,(e+f x)-\\
&\quad a^2 c^4 C d^2\,(e+f x)+b^2 c^4 C d^2\,(e+f x)+4 a A b c^3 d^3\,(e+f x)+2 a^2 B c^3 d^3\,(e+f x)-2 b^2 B c^3 d^3\,(e+f x)-4 a b c^3 C d^3\,(e+f x)-\\
&\quad a^2 A c^2 d^4\,(e+f x)+A b^2 c^2 d^4\,(e+f x)+2 a b B c^2 d^4\,(e+f x)+a^2 c^2 C d^4\,(e+f x)-b^2 c^2 C d^4\,(e+f x)-b^2 c^5 C d\,\text{Cos}[2\,(e+f x)]-\\
&\quad 2 b^2 c^3 C d^3\,\text{Cos}[2\,(e+f x)]-b^2 c C d^5\,\text{Cos}[2\,(e+f x)]+a^2 A c^4 d^2\,(e+f x)\,\text{Cos}[2\,(e+f x)]-A b^2 c^4 d^2\,(e+f x)\,\text{Cos}[2\,(e+f x)]-\\
&\quad 2 a b B c^4 d^2\,(e+f x)\,\text{Cos}[2\,(e+f x)]-a^2 c^4 C d^2\,(e+f x)\,\text{Cos}[2\,(e+f x)]+b^2 c^4 C d^2\,(e+f x)\,\text{Cos}[2\,(e+f x)]+\\
&\quad 4 a A b c^3 d^3\,(e+f x)\,\text{Cos}[2\,(e+f x)]+2 a^2 B c^3 d^3\,(e+f x)\,\text{Cos}[2\,(e+f x)]-2 b^2 B c^3 d^3\,(e+f x)\,\text{Cos}[2\,(e+f x)]-\\
&\quad 4 a b c^3 C d^3\,(e+f x)\,\text{Cos}[2\,(e+f x)]-a^2 A c^2 d^4\,(e+f x)\,\text{Cos}[2\,(e+f x)]+A b^2 c^2 d^4\,(e+f x)\,\text{Cos}[2\,(e+f x)]+\\
&\quad 2 a b B c^2 d^4\,(e+f x)\,\text{Cos}[2\,(e+f x)]+a^2 c^2 C d^4\,(e+f x)\,\text{Cos}[2\,(e+f x)]-b^2 c^2 C d^4\,(e+f x)\,\text{Cos}[2\,(e+f x)]+2 b^2 c^6 C\,\text{Sin}[2\,(e+f x)]-\\
&\quad b^2 B c^5 d\,\text{Sin}[2\,(e+f x)]-2 a b c^5 C d\,\text{Sin}[2\,(e+f x)]+A b^2 c^4 d^2\,\text{Sin}[2\,(e+f x)]+2 a b B c^4 d^2\,\text{Sin}[2\,(e+f x)]+\\
&\quad a^2 c^4 C d^2\,\text{Sin}[2\,(e+f x)]+3 b^2 c^4 C d^2\,\text{Sin}[2\,(e+f x)]-2 a A b c^3 d^3\,\text{Sin}[2\,(e+f x)]-a^2 B c^3 d^3\,\text{Sin}[2\,(e+f x)]-\\
&\quad b^2 B c^3 d^3\,\text{Sin}[2\,(e+f x)]-2 a b c^3 C d^3\,\text{Sin}[2\,(e+f x)]+a^2 A c^2 d^4\,\text{Sin}[2\,(e+f x)]+A b^2 c^2 d^4\,\text{Sin}[2\,(e+f x)]+\\
&\quad 2 a b B c^2 d^4\,\text{Sin}[2\,(e+f x)]+a^2 c^2 C d^4\,\text{Sin}[2\,(e+f x)]+b^2 c^2 C d^4\,\text{Sin}[2\,(e+f x)]-2 a A b c d^5\,\text{Sin}[2\,(e+f x)]-\\
&\quad a^2 B c d^5\,\text{Sin}[2\,(e+f x)]+a^2 A d^6\,\text{Sin}[2\,(e+f x)]+a^2 A c^3 d^3\,(e+f x)\,\text{Sin}[2\,(e+f x)]-A b^2 c^3 d^3\,(e+f x)\,\text{Sin}[2\,(e+f x)]-\\
&\quad 2 a b B c^3 d^3\,(e+f x)\,\text{Sin}[2\,(e+f x)]-a^2 c^3 C d^3\,(e+f x)\,\text{Sin}[2\,(e+f x)]+b^2 c^3 C d^3\,(e+f x)\,\text{Sin}[2\,(e+f x)]+\\
&\quad 4 a A b c^2 d^4\,(e+f x)\,\text{Sin}[2\,(e+f x)]+2 a^2 B c^2 d^4\,(e+f x)\,\text{Sin}[2\,(e+f x)]-2 b^2 B c^2 d^4\,(e+f x)\,\text{Sin}[2\,(e+f x)]-\\
&\quad 4 a b c^2 C d^4\,(e+f x)\,\text{Sin}[2\,(e+f x)]-a^2 A c d^5\,(e+f x)\,\text{Sin}[2\,(e+f x)]+A b^2 c d^5\,(e+f x)\,\text{Sin}[2\,(e+f x)]+\\
&\quad 2 a b B c d^5\,(e+f x)\,\text{Sin}[2\,(e+f x)]+a^2 c C d^5\,(e+f x)\,\text{Sin}[2\,(e+f x)]-b^2 c C d^5\,(e+f x)\,\text{Sin}[2\,(e+f x)]\big)\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\\
&\Big(2\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^2\Big)
\end{aligned}
$$

- **Problem 79: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{(a+b\,\text{Tan}[e+f x])\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 292 leaves, 5 steps):

$$-\frac{\left(a\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b\left(2 c\,(A-C)\,d-B\left(c^2-d^2\right)\right)\right) x}{\left(c^2+d^2\right)^2}-\frac{\left(a\left(B c^2+2 c C d-B d^2\right)-b\left(c^2 C-2 B c d-C d^2\right)-A\left(2 a c d-b\left(c^2-d^2\right)\right)\right) \text{Log}[\text{Cos}[e+f x]]}{\left(c^2+d^2\right)^2 f}+\frac{\left(b\left(c^4 C-c^2\,(A-3 C)\,d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c\,(A-C)\,d-B\left(c^2-d^2\right)\right)\right) \text{Log}[c+d\,\text{Tan}[e+f x]]}{d^2\left(c^2+d^2\right)^2 f}+\frac{(b c-a d)\left(c^2 C-B c d+A d^2\right)}{d^2\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])}$$

Result (type 3, 1433 leaves) :

$$\Big(\big(\mathrm{i}\, b c^9 C d+b c^8 C d^2-\mathrm{i} A b c^7 d^3-\mathrm{i}\, a B c^7 d^3+4\,\mathrm{i}\, b c^7 C d^3+2\,\mathrm{i}\, a A c^6 d^4-A b c^6 d^4-a B c^6 d^4-2\,\mathrm{i}\, b B c^6 d^4-2\,\mathrm{i}\, a c^6 C d^4+4 b c^6 C d^4+2 a A c^5 d^5-2 b B c^5 d^5-2 a c^5 C d^5+3\,\mathrm{i}\, b c^5 C d^5+2\,\mathrm{i}\, a A c^4 d^6-2\,\mathrm{i}\, b B c^4 d^6-2\,\mathrm{i}\, a c^4 C d^6+3 b c^4 C d^6+2 a A c^3 d^7+\mathrm{i} A b c^3 d^7+\mathrm{i}\, a B c^3 d^7-2 b B c^3 d^7-2 a c^3 C d^7+A b c^2 d^8+a B c^2 d^8\big)\,(e+f x)\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\Big(c^2\,(c-\mathrm{i}\, d)^4\,(c+\mathrm{i}\, d)^3 d^3 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\Big)-$$

$$\Big(\mathrm{i}\,\big(b c^4 C-A b c^2 d^2-a B c^2 d^2+3 b c^2 C d^2+2 a A c d^3-2 b B c d^3-2 a c C d^3+A b d^4+a B d^4\big)\,\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\Big(d^2\left(c^2+d^2\right)^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\Big)-$$

$$\frac{b C\,\text{Log}[\text{Cos}[e+f x]]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])}{d^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2}+$$

$$\Big(\big(b c^4 C-A b c^2 d^2-a B c^2 d^2+3 b c^2 C d^2+2 a A c d^3-2 b B c d^3-2 a c C d^3+A b d^4+a B d^4\big)\,\text{Log}\big[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\big]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\Big(2 d^2\left(c^2+d^2\right)^2 f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\Big)+$$

$$\Big(\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,\big(a A c^4 d\,(e+f x)\,\text{Cos}[e+f x]-b B c^4 d\,(e+f x)\,\text{Cos}[e+f x]-a c^4 C d\,(e+f x)\,\text{Cos}[e+f x]+2 A b c^3 d^2\,(e+f x)\,\text{Cos}[e+f x]+2 a B c^3 d^2\,(e+f x)\,\text{Cos}[e+f x]-2 b c^3 C d^2\,(e+f x)\,\text{Cos}[e+f x]-a A c^2 d^3\,(e+f x)\,\text{Cos}[e+f x]+b B c^2 d^3\,(e+f x)\,\text{Cos}[e+f x]+a c^2 C d^3\,(e+f x)\,\text{Cos}[e+f x]-b c^5 C\,\text{Sin}[e+f x]+b B c^4 d\,\text{Sin}[e+f x]+a c^4 C d\,\text{Sin}[e+f x]-A b c^3 d^2\,\text{Sin}[e+f x]-a B c^3 d^2\,\text{Sin}[e+f x]-b c^3 C d^2\,\text{Sin}[e+f x]+a A c^2 d^3\,\text{Sin}[e+f x]+b B c^2 d^3\,\text{Sin}[e+f x]+a c^2 C d^3\,\text{Sin}[e+f x]-A b c d^4\,\text{Sin}[e+f x]-a B c d^4\,\text{Sin}[e+f x]+a A d^5\,\text{Sin}[e+f x]+a A c^3 d^2\,(e+f x)\,\text{Sin}[e+f x]-b B c^3 d^2\,(e+f x)\,\text{Sin}[e+f x]-a c^3 C d^2\,(e+f x)\,\text{Sin}[e+f x]+2 A b c^2 d^3\,(e+f x)\,\text{Sin}[e+f x]+2 a B c^2 d^3\,(e+f x)\,\text{Sin}[e+f x]-2 b c^2 C d^3\,(e+f x)\,\text{Sin}[e+f x]-a A c d^4\,(e+f x)\,\text{Sin}[e+f x]+b B c d^4\,(e+f x)\,\text{Sin}[e+f x]+a c C d^4\,(e+f x)\,\text{Sin}[e+f x]\big)\,(a+b\,\text{Tan}[e+f x])\Big)\Big/\Big(c\,(c-\mathrm{i}\, d)^2\,(c+\mathrm{i}\, d)^2 d f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\Big)$$

- **Problem 80: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(c+d\,\text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 140 leaves, 3 steps) :

$$-\frac{\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right) x}{\left(c^2+d^2\right)^2}+\frac{\left(2 c\,(A-C)\,d-B\left(c^2-d^2\right)\right) \text{Log}[c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x]]}{\left(c^2+d^2\right)^2 f}-\frac{c^2 C-B c d+A d^2}{d\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])}$$

Result (type 3, 305 leaves) :

$$\frac{1}{2\,c\,\left(c^2+d^2\right)^2\,f\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)}\left(c^2\,\left(2\,\left(A-i\,B-C\right)\,\left(c+i\,d\right)^2\,\left(e+f\,x\right)+\left(2\,c\,\left(A-C\right)\,d+B\,\left(-c^2+d^2\right)\right)\,\mathrm{Log}\left[\left(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]\right)^2\right]\right)+\right.$$
$$\left(2\,\left(c+i\,d\right)\,\left(c^3\,C-i\,A\,d^3+c\,d^2\,\left(A\,\left(1+i\,e+i\,f\,x\right)-i\,C\,\left(e+f\,x\right)+B\,\left(i+e+f\,x\right)\right)-c^2\,d\,\left(B\,\left(1+i\,e+i\,f\,x\right)-A\,\left(e+f\,x\right)+C\,\left(i+e+f\,x\right)\right)\right)-\right.$$
$$\left.c\,d\,\left(2\,c\,\left(-A+C\right)\,d+B\,\left(c^2-d^2\right)\right)\,\mathrm{Log}\left[\left(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]\right)^2\right]\right)\,\mathrm{Tan}[e+f\,x]+$$
$$\left.2\,i\,c\,\left(2\,c\,\left(-A+C\right)\,d+B\,\left(c^2-d^2\right)\right)\,\mathrm{ArcTan}[\mathrm{Tan}[e+f\,x]]\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)\right)$$

- **Problem 81: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{\left(a+b\,\mathrm{Tan}[e+f\,x]\right)\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)^2}\,dx$$

Optimal (type 3, 293 leaves, 4 steps):

$$-\frac{\left(a\,\left(c^2\,C-2\,B\,c\,d-C\,d^2-A\,\left(c^2-d^2\right)\right)+b\,\left(2\,c\,\left(A-C\right)\,d-B\,\left(c^2-d^2\right)\right)\right)\,x}{\left(a^2+b^2\right)\,\left(c^2+d^2\right)^2}+\frac{b\,\left(A\,b^2-a\,\left(b\,B-a\,C\right)\right)\,\mathrm{Log}[a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x]]}{\left(a^2+b^2\right)\,\left(b\,c-a\,d\right)^2\,f}-$$
$$\frac{1}{\left(b\,c-a\,d\right)^2\,\left(c^2+d^2\right)^2\,f}\left(b\,\left(c^4\,C-2\,B\,c^3\,d+c^2\,\left(3\,A-C\right)\,d^2+A\,d^4\right)-a\,d^2\,\left(2\,c\,\left(A-C\right)\,d-B\,\left(c^2-d^2\right)\right)\right)\,\mathrm{Log}[c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]]+$$
$$\frac{c^2\,C-B\,c\,d+A\,d^2}{\left(b\,c-a\,d\right)\,\left(c^2+d^2\right)\,f\,\left(c+d\,\mathrm{Tan}[e+f\,x]\right)}$$

Result (type 3, 2693 leaves):

$$\left(\left(a A c^2+b B c^2-a c^2 C-2 A b c d+2 a B c d+2 b c C d-a A d^2-b B d^2+a C d^2\right)(e+f x)\,\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])\right.$$

$$\left.(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\Big/\left((a-\mathrm{i} b)(a+\mathrm{i} b)(c-\mathrm{i} d)^2(c+\mathrm{i} d)^2 f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)+$$

$$\left(\left(\mathrm{i} a^6 b^2 c^{10} C+2 \mathrm{i} a^4 b^4 c^{10} C+\mathrm{i} a^2 b^6 c^{10} C-2 \mathrm{i} a^6 b^2 B c^9 d-4 \mathrm{i} a^4 b^4 B c^9 d-2 \mathrm{i} a^2 b^6 B c^9 d-\mathrm{i} a^7 b c^9 C d+a^6 b^2 c^9 C d-2 \mathrm{i} a^5 b^3 c^9 C d+\right.\right.$$

$$2 a^4 b^4 c^9 C d-\mathrm{i} a^3 b^5 c^9 C d+a^2 b^6 c^9 C d+3 \mathrm{i} a^6 A b^2 c^8 d^2+6 \mathrm{i} a^4 A b^4 c^8 d^2+3 \mathrm{i} a^2 A b^6 c^8 d^2+3 \mathrm{i} a^7 b B c^8 d^2-2 a^6 b^2 B c^8 d^2+$$

$$6 \mathrm{i} a^5 b^3 B c^8 d^2-4 a^4 b^4 B c^8 d^2+3 \mathrm{i} a^3 b^5 B c^8 d^2-2 a^2 b^6 B c^8 d^2-a^7 b c^8 C d^2-2 a^5 b^3 c^8 C d^2-a^3 b^5 c^8 C d^2-5 \mathrm{i} a^7 A b c^7 d^3+3 a^6 A b^2 c^7 d^3-$$

$$10 \mathrm{i} a^5 A b^3 c^7 d^3+6 a^4 A b^4 c^7 d^3-5 \mathrm{i} a^3 A b^5 c^7 d^3+3 a^2 A b^6 c^7 d^3-\mathrm{i} a^8 B c^7 d^3+3 a^7 b B c^7 d^3-4 \mathrm{i} a^6 b^2 B c^7 d^3+6 a^5 b^3 B c^7 d^3-$$

$$5 \mathrm{i} a^4 b^4 B c^7 d^3+3 a^3 b^5 B c^7 d^3-2 \mathrm{i} a^2 b^6 B c^7 d^3+2 \mathrm{i} a^7 b c^7 C d^3+4 \mathrm{i} a^5 b^3 c^7 C d^3+2 \mathrm{i} a^3 b^5 c^7 C d^3+2 \mathrm{i} a^8 A c^6 d^4-5 a^7 A b c^6 d^4+$$

$$8 \mathrm{i} a^6 A b^2 c^6 d^4-10 a^5 A b^3 c^6 d^4+10 \mathrm{i} a^4 A b^4 c^6 d^4-5 a^3 A b^5 c^6 d^4+4 \mathrm{i} a^2 A b^6 c^6 d^4-a^8 B c^6 d^4+2 \mathrm{i} a^7 b B c^6 d^4-4 a^6 b^2 B c^6 d^4+$$

$$4 \mathrm{i} a^5 b^3 B c^6 d^4-5 a^4 b^4 B c^6 d^4+2 \mathrm{i} a^3 b^5 B c^6 d^4-2 a^2 b^6 B c^6 d^4-2 \mathrm{i} a^8 c^6 C d^4+2 a^7 b c^6 C d^4-5 \mathrm{i} a^6 b^2 c^6 C d^4+4 a^5 b^3 c^6 C d^4-$$

$$4 \mathrm{i} a^4 b^4 c^6 C d^4+2 a^3 b^5 c^6 C d^4-\mathrm{i} a^2 b^6 c^6 C d^4+2 a^8 A c^5 d^5-6 \mathrm{i} a^7 A b c^5 d^5+8 a^6 A b^2 c^5 d^5-12 \mathrm{i} a^5 A b^3 c^5 d^5+10 a^4 A b^4 c^5 d^5-$$

$$6 \mathrm{i} a^3 A b^5 c^5 d^5+4 a^2 A b^6 c^5 d^5+2 a^7 b B c^5 d^5+4 a^5 b^3 B c^5 d^5+2 a^3 b^5 B c^5 d^5-2 a^8 c^5 C d^5+3 \mathrm{i} a^7 b c^5 C d^5-5 a^6 b^2 c^5 C d^5+$$

$$6 \mathrm{i} a^5 b^3 c^5 C d^5-4 a^4 b^4 c^5 C d^5+3 \mathrm{i} a^3 b^5 c^5 C d^5-a^2 b^6 c^5 C d^5+2 \mathrm{i} a^8 A c^4 d^6-6 a^7 A b c^4 d^6+5 \mathrm{i} a^6 A b^2 c^4 d^6-12 a^5 A b^3 c^4 d^6+$$

$$4 \mathrm{i} a^4 A b^4 c^4 d^6-6 a^3 A b^5 c^4 d^6+\mathrm{i} a^2 A b^6 c^4 d^6-\mathrm{i} a^7 b B c^4 d^6-2 \mathrm{i} a^5 b^3 B c^4 d^6-\mathrm{i} a^3 b^5 B c^4 d^6-2 \mathrm{i} a^8 c^4 C d^6+3 a^7 b c^4 C d^6-$$

$$4 \mathrm{i} a^6 b^2 c^4 C d^6+6 a^5 b^3 c^4 C d^6-2 \mathrm{i} a^4 b^4 c^4 C d^6+3 a^3 b^5 c^4 C d^6+2 a^8 A c^3 d^7-\mathrm{i} a^7 A b c^3 d^7+5 a^6 A b^2 c^3 d^7-2 \mathrm{i} a^5 A b^3 c^3 d^7+$$

$$4 a^4 A b^4 c^3 d^7-\mathrm{i} a^3 A b^5 c^3 d^7+a^2 A b^6 c^3 d^7+\mathrm{i} a^8 B c^3 d^7-a^7 b B c^3 d^7+2 \mathrm{i} a^6 b^2 B c^3 d^7-2 a^5 b^3 B c^3 d^7+\mathrm{i} a^4 b^4 B c^3 d^7-a^3 b^5 B c^3 d^7-$$

$$\left.2 a^8 c^3 C d^7-4 a^6 b^2 c^3 C d^7-2 a^4 b^4 c^3 C d^7-a^7 A b c^2 d^8-2 a^5 A b^3 c^2 d^8-a^3 A b^5 c^2 d^8+a^8 B c^2 d^8+2 a^6 b^2 B c^2 d^8+a^4 b^4 B c^2 d^8\right)$$

$$\left.(e+f x)\,\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\Big/$$

$$\left(a^2 (a-\mathrm{i} b)(a+\mathrm{i} b)\left(a^2+b^2\right) c^2 (c-\mathrm{i} d)^4 (c+\mathrm{i} d)^3 (-b c+a d)^3 f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)-$$

$$\left(\mathrm{i}\left(-b c^4 C+2 b B c^3 d-3 A b c^2 d^2-a B c^2 d^2+b c^2 C d^2+2 a A c d^3-2 a c C d^3-A b d^4+a B d^4\right)\right.$$

$$\left.\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\Big/$$

$$\left((b c-a d)^2\left(c^2+d^2\right)^2 f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)+$$

$$\left(\left(A b^3-a b^2 B+a^2 b C\right)\text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]\,\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\Big/$$

$$\left(\left(a^2+b^2\right)(-b c+a d)^2 f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)+$$

$$\left(\left(-b c^4 C+2 b B c^3 d-3 A b c^2 d^2-a B c^2 d^2+b c^2 C d^2+2 a A c d^3-2 a c C d^3-A b d^4+a B d^4\right)\right.$$

$$\left.\text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right)\Big/$$

$$\left(2 (b c-a d)^2\left(c^2+d^2\right)^2 f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)+$$

$$\left(\text{Sec}[e+f x]^3\,(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\left(-c^2 C d \text{Sin}[e+f x]+B c d^2 \text{Sin}[e+f x]-A d^3 \text{Sin}[e+f x]\right)\right)\Big/$$

$$\left(c (c-\mathrm{i} d)(c+\mathrm{i} d)(b c-a d) f\,(a+b \text{Tan}[e+f x])(c+d \text{Tan}[e+f x])^2\right)$$

- **Problem 82: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2}{(a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2}\,dx$$

Optimal (type 3, 509 leaves, 5 steps) :

$$-\frac{1}{(a^2+b^2)^2 (c^2+d^2)^2}\left(a^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-b^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)+2 a b\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) x+$$

$$\frac{1}{(a^2+b^2)^2 (b c-a d)^3 f} b\left(3 a^3 b B d-2 a^4 C d+b^4 (B c-2 A d)-a^2 b^2 (B c+4 A d)+a b^3 (2 A c-2 c C+B d)\right) \text{Log}[a\, \text{Cos}[e+f x]+b\, \text{Sin}[e+f x]]+$$

$$\frac{1}{(b c-a d)^3 (c^2+d^2)^2 f} d\left(b\left(2 c^4 C-3 B c^3 d+4 A c^2 d^2-B c d^3+2 A d^4\right)-a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) \text{Log}[c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x]]-$$

$$\frac{d\left(b^2 c (c C-B d)-a b B\left(c^2+d^2\right)+a^2\left(2 c^2 C-B c d+C d^2\right)+A\left(a^2 d^2+b^2\left(c^2+2 d^2\right)\right)\right)}{(a^2+b^2)(b c-a d)^2(c^2+d^2) f (c+d\, \text{Tan}[e+f x])}-$$

$$\frac{A b^2-a (b B-a C)}{(a^2+b^2)(b c-a d) f (a+b\, \text{Tan}[e+f x])(c+d\, \text{Tan}[e+f x])}$$

Result (type 3, 8527 leaves) :

$$-((\text{i} (-2 a^6 A b^5 c^{11}+2 \text{i} a^5 A b^6 c^{11}-2 a^4 A b^7 c^{11}+2 \text{i} a^3 A b^8 c^{11}+a^7 b^4 B c^{11}-\text{i} a^6 b^5 B c^{11}-a^3 b^8 B c^{11}+\text{i} a^2 b^9 B c^{11}+2 a^6 b^5 c^{11} C-2 \text{i} a^5 b^6 c^{11} C+$$
$$2 a^4 b^7 c^{11} C-2 \text{i} a^3 b^8 c^{11} C+6 a^7 A b^4 c^{10} d-4 \text{i} a^6 A b^5 c^{10} d+10 a^5 A b^6 c^{10} d-6 \text{i} a^4 A b^7 c^{10} d+4 a^3 A b^8 c^{10} d-2 \text{i} a^2 A b^9 c^{10} d-$$
$$4 a^8 b^3 B c^{10} d+3 \text{i} a^7 b^4 B c^{10} d-5 a^6 b^5 B c^{10} d+4 \text{i} a^5 b^6 B c^{10} d+\text{i} a^3 b^8 B c^{10} d+a^2 b^9 B c^{10} d-6 a^7 b^4 c^{10} C d+4 \text{i} a^6 b^5 c^{10} C d-$$
$$10 a^5 b^6 c^{10} C d+6 \text{i} a^4 b^7 c^{10} C d-4 a^3 b^8 c^{10} C d+2 \text{i} a^2 b^9 c^{10} C d-4 a^8 A b^3 c^9 d^2-2 \text{i} a^7 A b^4 c^9 d^2-18 a^6 A b^5 c^9 d^2+4 \text{i} a^5 A b^6 c^9 d^2-$$
$$16 a^4 A b^7 c^9 d^2+6 \text{i} a^3 A b^8 c^9 d^2-2 a^2 A b^9 c^9 d^2+6 a^9 b^2 B c^9 d^2-2 \text{i} a^8 b^3 B c^9 d^2+20 a^7 b^4 B c^9 d^2-12 \text{i} a^6 b^5 B c^9 d^2+14 a^5 b^6 B c^9 d^2-$$
$$10 \text{i} a^4 b^7 B c^9 d^2+4 a^8 b^3 c^9 C d^2+2 \text{i} a^7 b^4 c^9 C d^2+18 a^6 b^5 c^9 C d^2-4 \text{i} a^5 b^6 c^9 C d^2+16 a^4 b^7 c^9 C d^2-6 \text{i} a^3 b^8 c^9 C d^2+2 a^2 b^9 c^9 C d^2-$$
$$4 a^9 A b^2 c^8 d^3+8 \text{i} a^8 A b^3 c^8 d^3+10 a^7 A b^4 c^8 d^3+6 \text{i} a^6 A b^5 c^8 d^3+24 a^5 A b^6 c^8 d^3-4 \text{i} a^4 A b^7 c^8 d^3+10 a^3 A b^8 c^8 d^3-2 \text{i} a^2 A b^9 c^8 d^3-$$
$$4 a^{10} b B c^8 d^3-2 \text{i} a^9 b^2 B c^8 d^3-30 a^8 b^3 B c^8 d^3+8 \text{i} a^7 b^4 B c^8 d^3-40 a^6 b^5 B c^8 d^3+14 \text{i} a^5 b^6 B c^8 d^3-14 a^4 b^7 B c^8 d^3+4 \text{i} a^3 b^8 B c^8 d^3+$$
$$4 a^9 b^2 c^8 C d^3-8 \text{i} a^8 b^3 c^8 C d^3-10 a^7 b^4 c^8 C d^3-6 \text{i} a^6 b^5 c^8 C d^3-24 a^5 b^6 c^8 C d^3+4 \text{i} a^4 b^7 c^8 C d^3-10 a^3 b^8 c^8 C d^3+2 \text{i} a^2 b^9 c^8 C d^3+$$
$$6 a^{10} A b c^7 d^4-2 \text{i} a^9 A b^2 c^7 d^4+10 a^8 A b^3 c^7 d^4-12 \text{i} a^7 A b^4 c^7 d^4-12 a^6 A b^5 c^7 d^4-6 \text{i} a^5 A b^6 c^7 d^4-18 a^4 A b^7 c^7 d^4+4 \text{i} a^3 A b^8 c^7 d^4-$$
$$2 a^2 A b^9 c^7 d^4+a^{11} B c^7 d^4+3 \text{i} a^{10} b B c^7 d^4+20 a^9 b^2 B c^7 d^4+8 \text{i} a^8 b^3 B c^7 d^4+54 a^7 b^4 B c^7 d^4-6 \text{i} a^6 b^5 B c^7 d^4+40 a^5 b^6 B c^7 d^4-$$
$$12 \text{i} a^4 b^7 B c^7 d^4+5 a^3 b^8 B c^7 d^4-\text{i} a^2 b^9 B c^7 d^4-6 a^{10} b c^7 C d^4+2 \text{i} a^9 b^2 c^7 C d^4-10 a^8 b^3 c^7 C d^4+12 \text{i} a^7 b^4 c^7 C d^4+12 a^6 b^5 c^7 C d^4+$$
$$6 \text{i} a^5 b^6 c^7 C d^4+18 a^4 b^7 c^7 C d^4-4 \text{i} a^3 b^8 c^7 C d^4+2 a^2 b^9 c^7 C d^4-2 a^{11} A c^6 d^5-4 \text{i} a^{10} A b c^6 d^5-18 a^9 A b^2 c^6 d^5+6 \text{i} a^8 A b^3 c^6 d^5-$$
$$12 a^7 A b^4 c^6 d^5+12 \text{i} a^6 A b^5 c^6 d^5+10 a^5 A b^6 c^6 d^5+2 \text{i} a^4 A b^7 c^6 d^5+6 a^3 A b^8 c^6 d^5-\text{i} a^{11} B c^6 d^5-5 a^{10} b B c^6 d^5-12 \text{i} a^9 b^2 B c^6 d^5-$$
$$40 a^8 b^3 B c^6 d^5-6 \text{i} a^7 b^4 B c^6 d^5-54 a^6 b^5 B c^6 d^5+8 \text{i} a^5 b^6 B c^6 d^5-20 a^4 b^7 B c^6 d^5+3 \text{i} a^3 b^8 B c^6 d^5-a^2 b^9 B c^6 d^5+2 a^{11} c^6 C d^5+$$
$$4 \text{i} a^{10} b c^6 C d^5+18 a^9 b^2 c^6 C d^5-6 \text{i} a^8 b^3 c^6 C d^5+12 a^7 b^4 c^6 C d^5-12 \text{i} a^6 b^5 c^6 C d^5-10 a^5 b^6 c^6 C d^5-2 \text{i} a^4 b^7 c^6 C d^5-6 a^3 b^8 c^6 C d^5+$$
$$2 \text{i} a^{11} A c^5 d^6+10 a^{10} A b c^5 d^6+4 \text{i} a^9 A b^2 c^5 d^6+24 a^8 A b^3 c^5 d^6-6 \text{i} a^7 A b^4 c^5 d^6+10 a^6 A b^5 c^5 d^6-8 \text{i} a^5 A b^6 c^5 d^6-4 a^4 A b^7 c^5 d^6+$$
$$4 \text{i} a^{10} b B c^5 d^6+14 a^9 b^2 B c^5 d^6+14 \text{i} a^8 b^3 B c^5 d^6+40 a^7 b^4 B c^5 d^6+8 \text{i} a^6 b^5 B c^5 d^6+30 a^5 b^6 B c^5 d^6-2 \text{i} a^4 b^7 B c^5 d^6+4 a^3 b^8 B c^5 d^6-$$
$$2 \text{i} a^{11} c^5 C d^6-10 a^{10} b c^5 C d^6-4 \text{i} a^9 b^2 c^5 C d^6-24 a^8 b^3 c^5 C d^6+6 \text{i} a^7 b^4 c^5 C d^6-10 a^6 b^5 c^5 C d^6+8 \text{i} a^5 b^6 c^5 C d^6+4 a^4 b^7 c^5 C d^6-$$
$$2 a^{11} A c^4 d^7-6 \text{i} a^{10} A b c^4 d^7-16 a^9 A b^2 c^4 d^7-4 \text{i} a^8 A b^3 c^4 d^7-18 a^7 A b^4 c^4 d^7+2 \text{i} a^6 A b^5 c^4 d^7-4 a^5 A b^6 c^4 d^7-10 \text{i} a^9 b^2 B c^4 d^7-$$
$$14 a^8 b^3 B c^4 d^7-12 \text{i} a^7 b^4 B c^4 d^7-20 a^6 b^5 B c^4 d^7-2 \text{i} a^5 b^6 B c^4 d^7-6 a^4 b^7 B c^4 d^7+2 a^{11} c^4 C d^7+6 \text{i} a^{10} b c^4 C d^7+16 a^9 b^2 c^4 C d^7+$$
$$4 \text{i} a^8 b^3 c^4 C d^7+18 a^7 b^4 c^4 C d^7-2 \text{i} a^6 b^5 c^4 C d^7+4 a^5 b^6 c^4 C d^7+2 \text{i} a^{11} A c^3 d^8+4 a^{10} A b c^3 d^8+6 \text{i} a^9 A b^2 c^3 d^8+10 a^8 A b^3 c^3 d^8+$$
$$4 \text{i} a^7 A b^4 c^3 d^8+6 a^6 A b^5 c^3 d^8-a^{11} B c^3 d^8+\text{i} a^{10} b B c^3 d^8+4 \text{i} a^8 b^3 B c^3 d^8+5 a^7 b^4 B c^3 d^8+3 \text{i} a^6 b^5 B c^3 d^8+4 a^5 b^6 B c^3 d^8-2 \text{i} a^{11} c^3 C d^8-$$
$$4 a^{10} b c^3 C d^8-6 \text{i} a^9 b^2 c^3 C d^8-10 a^8 b^3 c^3 C d^8-4 \text{i} a^7 b^4 c^3 C d^8-6 a^6 b^5 c^3 C d^8-2 \text{i} a^{10} A b c^2 d^9-2 a^9 A b^2 c^2 d^9-2 \text{i} a^8 A b^3 c^2 d^9-$$
$$2 a^7 A b^4 c^2 d^9+\text{i} a^{11} B c^2 d^9+a^{10} b B c^2 d^9-\text{i} a^7 b^4 B c^2 d^9-a^6 b^5 B c^2 d^9+2 \text{i} a^{10} b c^2 C d^9+2 a^9 b^2 c^2 C d^9+2 \text{i} a^8 b^3 c^2 C d^9+2 a^7 b^4 c^2 C d^9)$$
$$(e+f x)\, \text{Sec}[e+f x]^4 (a\, \text{Cos}[e+f x]+b\, \text{Sin}[e+f x])^2 (c\, \text{Cos}[e+f x]+d\, \text{Sin}[e+f x])^2) \Big/$$
$$(a^2 (a-\text{i} b)^4 (a+\text{i} b)^3 c^2 (c-\text{i} d)^4 (c+\text{i} d)^3 (-b c+a d)^4 f (a+b\, \text{Tan}[e+f x])^2 (c+d\, \text{Tan}[e+f x])^2))-$$

$$\left(i\left(-2 a A b^4 c+a^2 b^3 B c-b^5 B c+2 a b^4 c C+4 a^2 A b^3 d+2 A b^5 d-3 a^3 b^2 B d-a b^4 B d+2 a^4 b C d\right)\right.$$
$$\text{ArcTan}[\text{Tan}[e+f x]]$$
$$\text{Sec}[e+f x]^4$$
$$(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2$$
$$\left.(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) \Big/$$
$$\left(\left(a^2+b^2\right)^2 (-b c+a d)^3 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)+$$
$$\left(i\left(-2 b c^4 C d+3 b B c^3 d^2-4 A b c^2 d^3-a B c^2 d^3+2 a A c d^4+b B c d^4-2 a c C d^4-2 A b d^5+a B d^5\right)\right.$$
$$\text{ArcTan}[\text{Tan}[e+f x]] \text{Sec}[e+f x]^4$$
$$(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2$$
$$\left.(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) \Big/$$
$$\left((b c-a d)^3 \left(c^2+d^2\right)^2 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)+$$
$$\left(\left(-2 a A b^4 c+a^2 b^3 B c-b^5 B c+2 a b^4 c C+4 a^2 A b^3 d+2 A b^5 d-3 a^3 b^2 B d-a b^4 B d+2 a^4 b C d\right)\right.$$
$$\text{Log}\left[(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2\right] \text{Sec}[e+f x]^4$$
$$\left.(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) \Big/$$
$$\left(2 \left(a^2+b^2\right)^2 (-b c+a d)^3 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)-$$
$$\left(\left(-2 b c^4 C d+3 b B c^3 d^2-4 A b c^2 d^3-a B c^2 d^3+2 a A c d^4+b B c d^4-2 a c C d^4-2 A b d^5+a B d^5\right)\right.$$
$$\text{Log}\left[(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right] \text{Sec}[e+f x]^4$$
$$\left.(a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) \Big/$$
$$\left(2 (b c-a d)^3 \left(c^2+d^2\right)^2 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)+$$
$$\left(\text{Sec}[e+f x]^4 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right.$$
$$\left(a^2 A b^4 c^5 d+A b^6 c^5 d-a^3 b^3 B c^5 d-a b^5 B c^5 d+a^4 b^2 c^5 C d+a^2 b^4 c^5 C d+a^5 b c^4 C d^2+2 a^3 b^3 c^4 C d^2+a b^5 c^4 C d^2+2 a^2 A b^4 c^3 d^3+\right.$$
$$2 A b^6 c^3 d^3-a^5 b B c^3 d^3-4 a^3 b^3 B c^3 d^3-3 a b^5 B c^3 d^3+2 a^4 b^2 c^3 C d^3+2 a^2 b^4 c^3 C d^3+a^5 A b c^2 d^4+2 a^3 A b^3 c^2 d^4+a A b^5 c^2 d^4+$$
$$a^5 b c^2 C d^4+2 a^3 b^3 c^2 C d^4+a b^5 c^2 C d^4+a^2 A b^4 c d^5+A b^6 c d^5-a^5 b B c d^5-3 a^3 b^3 B c d^5-2 a b^5 B c d^5+a^4 b^2 c C d^5+a^2 b^4 c C d^5+$$
$$a^5 A b d^6+2 a^3 A b^3 d^6+a A b^5 d^6+a^4 A b^2 c^6 (e+f x)-a^2 A b^4 c^6 (e+f x)+2 a^3 b^3 B c^6 (e+f x)-a^4 b^2 c^6 C (e+f x)+a^2 b^4 c^6 C (e+f x)-$$
$$2 a^5 A b c^5 d (e+f x)-a^3 A b^3 c^5 d (e+f x)-a A b^5 c^5 d (e+f x)-2 a^4 b^2 B c^5 d (e+f x)+2 a^5 b c^5 C d (e+f x)+a^3 b^3 c^5 C d (e+f x)+$$
$$a b^5 c^5 C d (e+f x)+a^6 A c^4 d^2 (e+f x)+4 a^4 A b^2 c^4 d^2 (e+f x)-a^2 A b^4 c^4 d^2 (e+f x)-2 a^5 b B c^4 d^2 (e+f x)-2 a b^5 B c^4 d^2 (e+f x)-$$
$$a^6 c^4 C d^2 (e+f x)-4 a^4 b^2 c^4 C d^2 (e+f x)+a^2 b^4 c^4 C d^2 (e+f x)-a^5 A b c^3 d^3 (e+f x)+4 a^3 A b^3 c^3 d^3 (e+f x)+a A b^5 c^3 d^3 (e+f x)+$$
$$2 a^6 B c^3 d^3 (e+f x)+2 a^2 b^4 B c^3 d^3 (e+f x)+a^5 b c^3 C d^3 (e+f x)-4 a^3 b^3 c^3 C d^3 (e+f x)-a b^5 c^3 C d^3 (e+f x)-a^6 A c^2 d^4 (e+f x)-$$
$$a^4 A b^2 c^2 d^4 (e+f x)-2 a^2 A b^4 c^2 d^4 (e+f x)+2 a^3 b^3 B c^2 d^4 (e+f x)+a^6 c^2 C d^4 (e+f x)+a^4 b^2 c^2 C d^4 (e+f x)+2 a^2 b^4 c^2 C d^4 (e+f x)-$$
$$a^5 A b c d^5 (e+f x)+a^3 A b^3 c d^5 (e+f x)-2 a^4 b^2 B c d^5 (e+f x)+a^5 b c C d^5 (e+f x)-a^3 b^3 c C d^5 (e+f x)-a^2 A b^4 c^5 d \text{Cos}[2 (e+f x)]-$$
$$A b^6 c^5 d \text{Cos}[2 (e+f x)]+a^3 b^3 B c^5 d \text{Cos}[2 (e+f x)]+a b^5 B c^5 d \text{Cos}[2 (e+f x)]-a^4 b^2 c^5 C d \text{Cos}[2 (e+f x)]-a^2 b^4 c^5 C d \text{Cos}[2 (e+f x)]-$$
$$a^5 b c^4 C d^2 \text{Cos}[2 (e+f x)]-2 a^3 b^3 c^4 C d^2 \text{Cos}[2 (e+f x)]-a b^5 c^4 C d^2 \text{Cos}[2 (e+f x)]-2 a^2 A b^4 c^3 d^3 \text{Cos}[2 (e+f x)]-$$
$$2 A b^6 c^3 d^3 \text{Cos}[2 (e+f x)]+a^5 b B c^3 d^3 \text{Cos}[2 (e+f x)]+4 a^3 b^3 B c^3 d^3 \text{Cos}[2 (e+f x)]+3 a b^5 B c^3 d^3 \text{Cos}[2 (e+f x)]-$$
$$2 a^4 b^2 c^3 C d^3 \text{Cos}[2 (e+f x)]-2 a^2 b^4 c^3 C d^3 \text{Cos}[2 (e+f x)]-a^5 A b c^2 d^4 \text{Cos}[2 (e+f x)]-2 a^3 A b^3 c^2 d^4 \text{Cos}[2 (e+f x)]-$$
$$a A b^5 c^2 d^4 \text{Cos}[2 (e+f x)]-a^5 b c^2 C d^4 \text{Cos}[2 (e+f x)]-2 a^3 b^3 c^2 C d^4 \text{Cos}[2 (e+f x)]-a b^5 c^2 C d^4 \text{Cos}[2 (e+f x)]-$$
$$a^2 A b^4 c d^5 \text{Cos}[2 (e+f x)]-A b^6 c d^5 \text{Cos}[2 (e+f x)]+a^5 b B c d^5 \text{Cos}[2 (e+f x)]+3 a^3 b^3 B c d^5 \text{Cos}[2 (e+f x)]+$$
$$2 a b^5 B c d^5 \text{Cos}[2 (e+f x)]-a^4 b^2 c C d^5 \text{Cos}[2 (e+f x)]-a^2 b^4 c C d^5 \text{Cos}[2 (e+f x)]-a^5 A b d^6 \text{Cos}[2 (e+f x)]-$$
$$2 a^3 A b^3 d^6 \text{Cos}[2 (e+f x)]-a A b^5 d^6 \text{Cos}[2 (e+f x)]+a^4 A b^2 c^6 (e+f x) \text{Cos}[2 (e+f x)]-a^2 A b^4 c^6 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$2 a^3 b^3 B c^6 (e+f x) \text{Cos}[2 (e+f x)]-a^4 b^2 c^6 C (e+f x) \text{Cos}[2 (e+f x)]+a^2 b^4 c^6 C (e+f x) \text{Cos}[2 (e+f x)]-$$
$$2 a^5 A b c^5 d (e+f x) \text{Cos}[2 (e+f x)]-3 a^3 A b^3 c^5 d (e+f x) \text{Cos}[2 (e+f x)]+a A b^5 c^5 d (e+f x) \text{Cos}[2 (e+f x)]-$$
$$2 a^4 b^2 B c^5 d (e+f x) \text{Cos}[2 (e+f x)]-4 a^2 b^4 B c^5 d (e+f x) \text{Cos}[2 (e+f x)]+2 a^5 b c^5 C d (e+f x) \text{Cos}[2 (e+f x)]+$$

$$3 a^3 b^3 c^5 C d (e+f x) \text{Cos}[2 (e+f x)]-a b^5 c^5 C d (e+f x) \text{Cos}[2 (e+f x)]+a^6 A c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$8 a^4 A b^2 c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+3 a^2 A b^4 c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]-2 a^5 b B c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$4 a^3 b^3 B c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]+2 a b^5 B c^4 d^2 (e+f x) \text{Cos}[2 (e+f x)]-a^6 c^4 C d^2 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$8 a^4 b^2 c^4 C d^2 (e+f x) \text{Cos}[2 (e+f x)]-3 a^2 b^4 c^4 C d^2 (e+f x) \text{Cos}[2 (e+f x)]-3 a^5 A b c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$8 a^3 A b^3 c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]-a A b^5 c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]+2 a^6 B c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$4 a^4 b^2 B c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]-2 a^2 b^4 B c^3 d^3 (e+f x) \text{Cos}[2 (e+f x)]+3 a^5 b c^3 C d^3 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$8 a^3 b^3 c^3 C d^3 (e+f x) \text{Cos}[2 (e+f x)]+a b^5 c^3 C d^3 (e+f x) \text{Cos}[2 (e+f x)]-a^6 A c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$3 a^4 A b^2 c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]+2 a^2 A b^4 c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]-4 a^5 b B c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$2 a^3 b^3 B c^2 d^4 (e+f x) \text{Cos}[2 (e+f x)]+a^6 c^2 C d^4 (e+f x) \text{Cos}[2 (e+f x)]-3 a^4 b^2 c^2 C d^4 (e+f x) \text{Cos}[2 (e+f x)]-$$
$$2 a^2 b^4 c^2 C d^4 (e+f x) \text{Cos}[2 (e+f x)]+a^5 A b c d^5 (e+f x) \text{Cos}[2 (e+f x)]-a^3 A b^3 c d^5 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$2 a^4 b^2 B c d^5 (e+f x) \text{Cos}[2 (e+f x)]-a^5 b c C d^5 (e+f x) \text{Cos}[2 (e+f x)]+a^3 b^3 c C d^5 (e+f x) \text{Cos}[2 (e+f x)]+$$
$$a^2 A b^4 c^6 \text{Sin}[2 (e+f x)]+A b^6 c^6 \text{Sin}[2 (e+f x)]-a^3 b^3 B c^6 \text{Sin}[2 (e+f x)]-a b^5 B c^6 \text{Sin}[2 (e+f x)]+$$
$$a^4 b^2 c^6 C \text{Sin}[2 (e+f x)]+a^2 b^4 c^6 C \text{Sin}[2 (e+f x)]+2 a^2 A b^4 c^4 d^2 \text{Sin}[2 (e+f x)]+2 A b^6 c^4 d^2 \text{Sin}[2 (e+f x)]-$$
$$2 a^3 b^3 B c^4 d^2 \text{Sin}[2 (e+f x)]-2 a b^5 B c^4 d^2 \text{Sin}[2 (e+f x)]+a^6 c^4 C d^2 \text{Sin}[2 (e+f x)]+4 a^4 b^2 c^4 C d^2 \text{Sin}[2 (e+f x)]+$$
$$3 a^2 b^4 c^4 C d^2 \text{Sin}[2 (e+f x)]-a^6 B c^3 d^3 \text{Sin}[2 (e+f x)]-2 a^4 b^2 B c^3 d^3 \text{Sin}[2 (e+f x)]-a^2 b^4 B c^3 d^3 \text{Sin}[2 (e+f x)]+$$
$$a^6 A c^2 d^4 \text{Sin}[2 (e+f x)]+2 a^4 A b^2 c^2 d^4 \text{Sin}[2 (e+f x)]+2 a^2 A b^4 c^2 d^4 \text{Sin}[2 (e+f x)]+A b^6 c^2 d^4 \text{Sin}[2 (e+f x)]-$$
$$a^3 b^3 B c^2 d^4 \text{Sin}[2 (e+f x)]-a b^5 B c^2 d^4 \text{Sin}[2 (e+f x)]+a^6 c^2 C d^4 \text{Sin}[2 (e+f x)]+3 a^4 b^2 c^2 C d^4 \text{Sin}[2 (e+f x)]+$$
$$2 a^2 b^4 c^2 C d^4 \text{Sin}[2 (e+f x)]-a^6 B c d^5 \text{Sin}[2 (e+f x)]-2 a^4 b^2 B c d^5 \text{Sin}[2 (e+f x)]-a^2 b^4 B c d^5 \text{Sin}[2 (e+f x)]+$$
$$a^6 A d^6 \text{Sin}[2 (e+f x)]+2 a^4 A b^2 d^6 \text{Sin}[2 (e+f x)]+a^2 A b^4 d^6 \text{Sin}[2 (e+f x)]+a^3 A b^3 c^6 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$a A b^5 c^6 (e+f x) \text{Sin}[2 (e+f x)]+2 a^2 b^4 B c^6 (e+f x) \text{Sin}[2 (e+f x)]-a^3 b^3 c^6 C (e+f x) \text{Sin}[2 (e+f x)]+$$
$$a b^5 c^6 C (e+f x) \text{Sin}[2 (e+f x)]-a^4 A b^2 c^5 d (e+f x) \text{Sin}[2 (e+f x)]-3 a^2 A b^4 c^5 d (e+f x) \text{Sin}[2 (e+f x)]-$$
$$2 a b^5 B c^5 d (e+f x) \text{Sin}[2 (e+f x)]+a^4 b^2 c^5 C d (e+f x) \text{Sin}[2 (e+f x)]+3 a^2 b^4 c^5 C d (e+f x) \text{Sin}[2 (e+f x)]-$$
$$a^5 A b c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]+4 a^3 A b^3 c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]+a A b^5 c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$4 a^4 b^2 B c^4 d^2 (e+f x) \text{Sin}[2 (e+f x)]+a^5 b c^4 C d^2 (e+f x) \text{Sin}[2 (e+f x)]-4 a^3 b^3 c^4 C d^2 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$a b^5 c^4 C d^2 (e+f x) \text{Sin}[2 (e+f x)]+a^6 A c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]+4 a^4 A b^2 c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$a^2 A b^4 c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]+4 a^3 b^3 B c^3 d^3 (e+f x) \text{Sin}[2 (e+f x)]-a^6 c^3 C d^3 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$4 a^4 b^2 c^3 C d^3 (e+f x) \text{Sin}[2 (e+f x)]+a^2 b^4 c^3 C d^3 (e+f x) \text{Sin}[2 (e+f x)]-3 a^5 A b c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$a^3 A b^3 c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]+2 a^6 B c^2 d^4 (e+f x) \text{Sin}[2 (e+f x)]+3 a^5 b c^2 C d^4 (e+f x) \text{Sin}[2 (e+f x)]+$$
$$a^3 b^3 c^2 C d^4 (e+f x) \text{Sin}[2 (e+f x)]-a^6 A c d^5 (e+f x) \text{Sin}[2 (e+f x)]+a^4 A b^2 c d^5 (e+f x) \text{Sin}[2 (e+f x)]-$$
$$2 a^5 b B c d^5 (e+f x) \text{Sin}[2 (e+f x)]+a^6 c C d^5 (e+f x) \text{Sin}[2 (e+f x)]-a^4 b^2 c C d^5 (e+f x) \text{Sin}[2 (e+f x)]\big)\big) \Big/$$
$$\left(2 a (a-i b)^2 (a+i b)^2 c (c-i d)^2 (c+i d)^2 (-b c+a d)^2 f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^2\right)$$

- **Problem 83: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2}{(a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2} \, dx$$

Optimal (type 3, 841 leaves, 6 steps) :

$$-\frac{1}{\left(a^2+b^2\right)^3\left(c^2+d^2\right)^2}\left(a^3\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)-3 a b^2\left(c^2 C-2 B c d-C d^2-A\left(c^2-d^2\right)\right)+3 a^2 b\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)-b^3\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) x-$$

$$\frac{1}{\left(a^2+b^2\right)^3 (b c-a d)^4 f} b\left(6 a^5 b B d^2-3 a^6 C d^2-a^4 b^2 d (4 B c+(10 A-C) d)-b^6\left(c (c C-2 B d)-A\left(c^2-3 d^2\right)\right)+a b^5\left(2 c (A-C) d-B\left(3 c^2-d^2\right)\right)+\right.$$

$$\left.3 a^2 b^4\left(c (c C+2 B d)-A\left(c^2+3 d^2\right)\right)+a^3 b^3\left(10 c (A-C) d+B\left(c^2+3 d^2\right)\right)\right) \text{Log}[a \text{Cos}[e+f x]+b \text{Sin}[e+f x]]-\frac{1}{(b c-a d)^4\left(c^2+d^2\right)^2 f}$$

$$d^2\left(b\left(3 c^4 C-4 B c^3 d+c^2 (5 A+C) d^2-2 B c d^3+3 A d^4\right)-a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right) \text{Log}[c \text{Cos}[e+f x]+d \text{Sin}[e+f x]]-$$

$$\left(d\left(3 a^3 b B d\left(c^2+d^2\right)+a b^3 (2 A c-2 c C+B d)\left(c^2+d^2\right)-a^4 d\left(3 c^2 C-B c d+(A+2 C) d^2\right)-\right.\right.$$

$$\left.\left.a^2 b^2\left(B c^3+4 A c^2 d+2 c^2 C d-B c d^2+6 A d^3\right)-b^4\left(d\left(2 A c^2+c^2 C+3 A d^2\right)-B\left(c^3+2 c d^2\right)\right)\right)\right) /$$

$$\left(\left(a^2+b^2\right)^2 (b c-a d)^3\left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])\right)-\frac{A b^2-a (b B-a C)}{2\left(a^2+b^2\right) (b c-a d) f (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])}-$$

$$\frac{5 a^3 b B d-3 a^4 C d+b^4 (2 B c-3 A d)+a b^3 (4 A c-4 c C+B d)-a^2 b^2 (2 B c+(7 A-C) d)}{2\left(a^2+b^2\right)^2 (b c-a d)^2 f (a+b \text{Tan}[e+f x]) (c+d \text{Tan}[e+f x])}$$

Result (type 3, 7873 leaves) :

$$\frac{\left(-A b^5+a b^4 B-a^2 b^3 C\right) \text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x]) (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2}{2 (a-\text{i} b)^2 (a+\text{i} b)^2 (-b c+a d)^2 f (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2}+$$

$$\left(\left(a^3 A c^2-3 a A b^2 c^2+3 a^2 b B c^2-b^3 B c^2-a^3 c^2 C+3 a b^2 c^2 C-6 a^2 A b c d+2 A b^3 c d+2 a^3 B c d-6 a b^2 B c d+6 a^2 b c C d-2 b^3 c C d-\right.\right.$$

$$\left.a^3 A d^2+3 a A b^2 d^2-3 a^2 b B d^2+b^3 B d^2+a^3 C d^2-3 a b^2 C d^2\right) (e+f x) \text{Sec}[e+f x]^5 (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^3$$

$$\left.(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2\right) /\left((a-\text{i} b)^3 (a+\text{i} b)^3 (c-\text{i} d)^2 (c+\text{i} d)^2 f (a+b \text{Tan}[e+f x])^3 (c+d \text{Tan}[e+f x])^2\right)+$$

$$\left(\left(3 a^9 A b^7 c^{13}-3 \text{i} a^8 A b^8 c^{13}+5 a^7 A b^9 c^{13}-5 \text{i} a^6 A b^{10} c^{13}+a^5 A b^{11} c^{13}-\text{i} a^4 A b^{12} c^{13}-a^3 A b^{13} c^{13}+\text{i} a^2 A b^{14} c^{13}-a^{10} b^6 B c^{13}+\text{i} a^9 b^7 B c^{13}+\right.\right.$$

$$a^8 b^8 B c^{13}-\text{i} a^7 b^9 B c^{13}+5 a^6 b^{10} B c^{13}-5 \text{i} a^5 b^{11} B c^{13}+3 a^4 b^{12} B c^{13}-3 \text{i} a^3 b^{13} B c^{13}-3 a^9 b^7 c^{13} C+3 \text{i} a^8 b^8 c^{13} C-5 a^7 b^9 c^{13} C+$$

$$5 \text{i} a^6 b^{10} c^{13} C-a^5 b^{11} c^{13} C+\text{i} a^4 b^{12} c^{13} C+a^3 b^{13} c^{13} C-\text{i} a^2 b^{14} c^{13} C-16 a^{10} A b^6 c^{12} d+13 \text{i} a^9 A b^7 c^{12} d-35 a^8 A b^8 c^{12} d+27 \text{i} a^7 A b^9 c^{12} d-$$

$$21 a^6 A b^{10} c^{12} d+15 \text{i} a^5 A b^{11} c^{12} d-a^4 A b^{12} c^{12} d+\text{i} a^3 A b^{13} c^{12} d+a^2 A b^{14} c^{12} d+6 a^{11} b^5 B c^{12} d-5 \text{i} a^{10} b^6 B c^{12} d+a^9 b^7 B c^{12} d-$$

$$\text{i} a^8 b^8 B c^{12} d-21 a^7 b^9 B c^{12} d+15 \text{i} a^6 b^{10} B c^{12} d-21 a^5 b^{11} B c^{12} d+13 \text{i} a^4 b^{12} B c^{12} d-5 a^3 b^{13} B c^{12} d+2 \text{i} a^2 b^{14} B c^{12} d+16 a^{10} b^6 c^{12} C d-$$

$$13 \text{i} a^9 b^7 c^{12} C d+35 a^8 b^8 c^{12} C d-27 \text{i} a^7 b^9 c^{12} C d+21 a^6 b^{10} c^{12} C d-15 \text{i} a^5 b^{11} c^{12} C d+a^4 b^{12} c^{12} C d-\text{i} a^3 b^{13} c^{12} C d-a^2 b^{14} c^{12} C d+$$

$$33 a^{11} A b^5 c^{11} d^2-17 \text{i} a^{10} A b^6 c^{11} d^2+103 a^9 A b^7 c^{11} d^2-55 \text{i} a^8 A b^8 c^{11} d^2+107 a^7 A b^9 c^{11} d^2-59 \text{i} a^6 A b^{10} c^{11} d^2+37 a^5 A b^{11} c^{11} d^2-$$

$$21 \text{i} a^4 A b^{12} c^{11} d^2-15 a^{12} b^4 B c^{11} d^2+9 \text{i} a^{11} b^5 B c^{11} d^2-27 a^{10} b^6 B c^{11} d^2+21 \text{i} a^9 b^7 B c^{11} d^2+15 a^8 b^8 B c^{11} d^2+5 \text{i} a^7 b^9 B c^{11} d^2+$$

$$53 a^6 b^{10} B c^{11} d^2-17 \text{i} a^5 b^{11} B c^{11} d^2+28 a^4 b^{12} B c^{11} d^2-10 \text{i} a^3 b^{13} B c^{11} d^2+2 a^2 b^{14} B c^{11} d^2-33 a^{11} b^5 c^{11} C d^2+17 \text{i} a^{10} b^6 c^{11} C d^2-$$

$$103 a^9 b^7 c^{11} C d^2+55 \text{i} a^8 b^8 c^{11} C d^2-107 a^7 b^9 c^{11} C d^2+59 \text{i} a^6 b^{10} c^{11} C d^2-37 a^5 b^{11} c^{11} C d^2+21 \text{i} a^4 b^{12} c^{11} C d^2-30 a^{12} A b^4 c^{10} d^3-$$

$$3 \text{i} a^{11} A b^5 c^{10} d^3-161 a^{10} A b^6 c^{10} d^3+41 \text{i} a^9 A b^7 c^{10} d^3-259 a^8 A b^8 c^{10} d^3+97 \text{i} a^7 A b^9 c^{10} d^3-155 a^6 A b^{10} c^{10} d^3+59 \text{i} a^5 A b^{11} c^{10} d^3-$$

$$27 a^4 A b^{12} c^{10} d^3+6 \text{i} a^3 A b^{13} c^{10} d^3+20 a^{13} b^3 B c^{10} d^3-5 \text{i} a^{12} b^4 B c^{10} d^3+85 a^{11} b^5 B c^{10} d^3-49 \text{i} a^{10} b^6 B c^{10} d^3+77 a^9 b^7 B c^{10} d^3-$$

$$71 \text{i} a^8 b^8 B c^{10} d^3-35 a^7 b^9 B c^{10} d^3-13 \text{i} a^6 b^{10} B c^{10} d^3-61 a^5 b^{11} B c^{10} d^3+16 \text{i} a^4 b^{12} B c^{10} d^3-14 a^3 b^{13} B c^{10} d^3+2 \text{i} a^2 b^{14} B c^{10} d^3+$$

$$30 a^{12} b^4 c^{10} C d^3+3 \text{i} a^{11} b^5 c^{10} C d^3+161 a^{10} b^6 c^{10} C d^3-41 \text{i} a^9 b^7 c^{10} C d^3+259 a^8 b^8 c^{10} C d^3-97 \text{i} a^7 b^9 c^{10} C d^3+155 a^6 b^{10} c^{10} C d^3-$$

$$59 \text{i} a^5 b^{11} c^{10} C d^3+27 a^4 b^{12} c^{10} C d^3-6 \text{i} a^3 b^{13} c^{10} C d^3+5 a^{13} A b^3 c^9 d^4+25 \text{i} a^{12} A b^4 c^9 d^4+133 a^{11} A b^5 c^9 d^4+25 \text{i} a^{10} A b^6 c^9 d^4+$$

$$352 a^9 A b^7 c^9 d^4-52 \text{i} a^8 A b^8 c^9 d^4+332 a^7 A b^9 c^9 d^4-80 \text{i} a^6 A b^{10} c^9 d^4+115 a^5 A b^{11} c^9 d^4-29 \text{i} a^4 A b^{12} c^9 d^4+7 a^3 A b^{13} c^9 d^4-$$

$$\text{i} a^2 A b^{14} c^9 d^4-15 a^{14} b^2 B c^9 d^4-5 \text{i} a^{13} b^3 B c^9 d^4-125 a^{12} b^4 B c^9 d^4+35 \text{i} a^{11} b^5 B c^9 d^4-230 a^{10} b^6 B c^9 d^4+104 \text{i} a^9 b^7 B c^9 d^4-$$

$$112 a^{8} b^{8} B c^{9} d^{4}+76 \mathrm{i} a^{7} b^{9} B c^{9} d^{4}+43 a^{6} b^{10} B c^{9} d^{4}+5 \mathrm{i} a^{5} b^{11} B c^{9} d^{4}+37 a^{4} b^{12} B c^{9} d^{4}-7 \mathrm{i} a^{3} b^{13} B c^{9} d^{4}+2 a^{2} b^{14} B c^{9} d^{4}-5 a^{13} b^{3} c^{9} C d^{4}-$$
$$25 \mathrm{i} a^{12} b^{4} c^{9} C d^{4}-133 a^{11} b^{5} c^{9} C d^{4}-25 \mathrm{i} a^{10} b^{6} c^{9} C d^{4}-352 a^{9} b^{7} c^{9} C d^{4}+52 \mathrm{i} a^{8} b^{8} c^{9} C d^{4}-332 a^{7} b^{9} c^{9} C d^{4}+80 \mathrm{i} a^{6} b^{10} c^{9} C d^{4}-$$
$$115 a^{5} b^{11} c^{9} C d^{4}+29 \mathrm{i} a^{4} b^{12} c^{9} C d^{4}-7 a^{3} b^{13} c^{9} C d^{4}+\mathrm{i} a^{2} b^{14} c^{9} C d^{4}+12 a^{14} A b^{2} c^{8} d^{5}-17 \mathrm{i} a^{13} A b^{3} c^{8} d^{5}-35 a^{12} A b^{4} c^{8} d^{5}-$$
$$73 \mathrm{i} a^{11} A b^{5} c^{8} d^{5}-271 a^{10} A b^{6} c^{8} d^{5}-56 \mathrm{i} a^{9} A b^{7} c^{8} d^{5}-428 a^{8} A b^{8} c^{8} d^{5}+44 \mathrm{i} a^{7} A b^{9} c^{8} d^{5}-244 a^{6} A b^{10} c^{8} d^{5}+49 \mathrm{i} a^{5} A b^{11} c^{8} d^{5}-$$
$$41 a^{4} A b^{12} c^{8} d^{5}+5 \mathrm{i} a^{3} A b^{13} c^{8} d^{5}-a^{2} A b^{14} c^{8} d^{5}+6 a^{15} b B c^{8} d^{5}+9 \mathrm{i} a^{14} b^{2} B c^{8} d^{5}+99 a^{13} b^{3} B c^{8} d^{5}+21 \mathrm{i} a^{12} b^{4} B c^{8} d^{5}+309 a^{11} b^{5} B c^{8} d^{5}-$$
$$44 \mathrm{i} a^{10} b^{6} B c^{8} d^{5}+328 a^{9} b^{7} B c^{8} d^{5}-112 \mathrm{i} a^{8} b^{8} B c^{8} d^{5}+86 a^{7} b^{9} B c^{8} d^{5}-53 \mathrm{i} a^{6} b^{10} B c^{8} d^{5}-35 a^{5} b^{11} B c^{8} d^{5}+3 \mathrm{i} a^{4} b^{12} B c^{8} d^{5}-$$
$$9 a^{3} b^{13} B c^{8} d^{5}-12 a^{14} b^{2} c^{8} C d^{5}+17 \mathrm{i} a^{13} b^{3} c^{8} C d^{5}+35 a^{12} b^{4} c^{8} C d^{5}+73 \mathrm{i} a^{11} b^{5} c^{8} C d^{5}+271 a^{10} b^{6} c^{8} C d^{5}+56 \mathrm{i} a^{9} b^{7} c^{8} C d^{5}+$$
$$428 a^{8} b^{8} c^{8} C d^{5}-44 \mathrm{i} a^{7} b^{9} c^{8} C d^{5}+244 a^{6} b^{10} c^{8} C d^{5}-49 \mathrm{i} a^{5} b^{11} c^{8} C d^{5}+41 a^{4} b^{12} c^{8} C d^{5}-5 \mathrm{i} a^{3} b^{13} c^{8} C d^{5}+a^{2} b^{14} c^{8} C d^{5}-9 a^{15} A b c^{7} d^{6}-$$
$$3 \mathrm{i} a^{14} A b^{2} c^{7} d^{6}-35 a^{13} A b^{3} c^{7} d^{6}+53 \mathrm{i} a^{12} A b^{4} c^{7} d^{6}+86 a^{11} A b^{5} c^{7} d^{6}+112 \mathrm{i} a^{10} A b^{6} c^{7} d^{6}+328 a^{9} A b^{7} c^{7} d^{6}+44 \mathrm{i} a^{8} A b^{8} c^{7} d^{6}+$$
$$309 a^{7} A b^{9} c^{7} d^{6}-21 \mathrm{i} a^{6} A b^{10} c^{7} d^{6}+99 a^{5} A b^{11} c^{7} d^{6}-9 \mathrm{i} a^{4} A b^{12} c^{7} d^{6}+6 a^{3} A b^{13} c^{7} d^{6}-a^{16} B c^{7} d^{6}-5 \mathrm{i} a^{15} b B c^{7} d^{6}-41 a^{14} b^{2} B c^{7} d^{6}-$$
$$49 \mathrm{i} a^{13} b^{3} B c^{7} d^{6}-244 a^{12} b^{4} B c^{7} d^{6}-44 \mathrm{i} a^{11} b^{5} B c^{7} d^{6}-428 a^{10} b^{6} B c^{7} d^{6}+56 \mathrm{i} a^{9} b^{7} B c^{7} d^{6}-271 a^{8} b^{8} B c^{7} d^{6}+73 \mathrm{i} a^{7} b^{9} B c^{7} d^{6}-$$
$$35 a^{6} b^{10} B c^{7} d^{6}+17 \mathrm{i} a^{5} b^{11} B c^{7} d^{6}+12 a^{4} b^{12} B c^{7} d^{6}+9 a^{15} b c^{7} C d^{6}+3 \mathrm{i} a^{14} b^{2} c^{7} C d^{6}+35 a^{13} b^{3} c^{7} C d^{6}-53 \mathrm{i} a^{12} b^{4} c^{7} C d^{6}-$$
$$86 a^{11} b^{5} c^{7} C d^{6}-112 \mathrm{i} a^{10} b^{6} c^{7} C d^{6}-328 a^{9} b^{7} c^{7} C d^{6}-44 \mathrm{i} a^{8} b^{8} c^{7} C d^{6}-309 a^{7} b^{9} c^{7} C d^{6}+21 \mathrm{i} a^{6} b^{10} c^{7} C d^{6}-99 a^{5} b^{11} c^{7} C d^{6}+$$
$$9 \mathrm{i} a^{4} b^{12} c^{7} C d^{6}-6 a^{3} b^{13} c^{7} C d^{6}+2 a^{16} A c^{6} d^{7}+7 \mathrm{i} a^{15} A b c^{6} d^{7}+37 a^{14} A b^{2} c^{6} d^{7}-5 \mathrm{i} a^{13} A b^{3} c^{6} d^{7}+43 a^{12} A b^{4} c^{6} d^{7}-76 \mathrm{i} a^{11} A b^{5} c^{6} d^{7}-$$
$$112 a^{10} A b^{6} c^{6} d^{7}-104 \mathrm{i} a^{9} A b^{7} c^{6} d^{7}-230 a^{8} A b^{8} c^{6} d^{7}-35 \mathrm{i} a^{7} A b^{9} c^{6} d^{7}-125 a^{6} A b^{10} c^{6} d^{7}+5 \mathrm{i} a^{5} A b^{11} c^{6} d^{7}-15 a^{4} A b^{12} c^{6} d^{7}+$$
$$\mathrm{i} a^{16} B c^{6} d^{7}+7 a^{15} b B c^{6} d^{7}+29 \mathrm{i} a^{14} b^{2} B c^{6} d^{7}+115 a^{13} b^{3} B c^{6} d^{7}+80 \mathrm{i} a^{12} b^{4} B c^{6} d^{7}+332 a^{11} b^{5} B c^{6} d^{7}+52 \mathrm{i} a^{10} b^{6} B c^{6} d^{7}+$$
$$352 a^{9} b^{7} B c^{6} d^{7}-25 \mathrm{i} a^{8} b^{8} B c^{6} d^{7}+133 a^{7} b^{9} B c^{6} d^{7}-25 \mathrm{i} a^{6} b^{10} B c^{6} d^{7}+5 a^{5} b^{11} B c^{6} d^{7}-2 a^{16} c^{6} C d^{7}-7 \mathrm{i} a^{15} b c^{6} C d^{7}-37 a^{14} b^{2} c^{6} C d^{7}+$$
$$5 \mathrm{i} a^{13} b^{3} c^{6} C d^{7}-43 a^{12} b^{4} c^{6} C d^{7}+76 \mathrm{i} a^{11} b^{5} c^{6} C d^{7}+112 a^{10} b^{6} c^{6} C d^{7}+104 \mathrm{i} a^{9} b^{7} c^{6} C d^{7}+230 a^{8} b^{8} c^{6} C d^{7}+35 \mathrm{i} a^{7} b^{9} c^{6} C d^{7}+$$
$$125 a^{6} b^{10} c^{6} C d^{7}-5 \mathrm{i} a^{5} b^{11} c^{6} C d^{7}+15 a^{4} b^{12} c^{6} C d^{7}-2 \mathrm{i} a^{16} A c^{5} d^{8}-14 a^{15} A b c^{5} d^{8}-16 \mathrm{i} a^{14} A b^{2} c^{5} d^{8}-61 a^{13} A b^{3} c^{5} d^{8}+$$
$$13 \mathrm{i} a^{12} A b^{4} c^{5} d^{8}-35 a^{11} A b^{5} c^{5} d^{8}+71 \mathrm{i} a^{10} A b^{6} c^{5} d^{8}+77 a^{9} A b^{7} c^{5} d^{8}+49 \mathrm{i} a^{8} A b^{8} c^{5} d^{8}+85 a^{7} A b^{9} c^{5} d^{8}+5 \mathrm{i} a^{6} A b^{10} c^{5} d^{8}+$$
$$20 a^{5} A b^{11} c^{5} d^{8}-6 \mathrm{i} a^{15} b B c^{5} d^{8}-27 a^{14} b^{2} B c^{5} d^{8}-59 \mathrm{i} a^{13} b^{3} B c^{5} d^{8}-155 a^{12} b^{4} B c^{5} d^{8}-97 \mathrm{i} a^{11} b^{5} B c^{5} d^{8}-259 a^{10} b^{6} B c^{5} d^{8}-$$
$$41 \mathrm{i} a^{9} b^{7} B c^{5} d^{8}-161 a^{8} b^{8} B c^{5} d^{8}+3 \mathrm{i} a^{7} b^{9} B c^{5} d^{8}-30 a^{6} b^{10} B c^{5} d^{8}+2 \mathrm{i} a^{16} c^{5} C d^{8}+14 a^{15} b c^{5} C d^{8}+16 \mathrm{i} a^{14} b^{2} c^{5} C d^{8}+61 a^{13} b^{3} c^{5} C d^{8}-$$
$$13 \mathrm{i} a^{12} b^{4} c^{5} C d^{8}+35 a^{11} b^{5} c^{5} C d^{8}-71 \mathrm{i} a^{10} b^{6} c^{5} C d^{8}-77 a^{9} b^{7} c^{5} C d^{8}-49 \mathrm{i} a^{8} b^{8} c^{5} C d^{8}-85 a^{7} b^{9} c^{5} C d^{8}-5 \mathrm{i} a^{6} b^{10} c^{5} C d^{8}-$$
$$20 a^{5} b^{11} c^{5} C d^{8}+2 a^{16} A c^{4} d^{9}+10 \mathrm{i} a^{15} A b c^{4} d^{9}+28 a^{14} A b^{2} c^{4} d^{9}+17 \mathrm{i} a^{13} A b^{3} c^{4} d^{9}+53 a^{12} A b^{4} c^{4} d^{9}-5 \mathrm{i} a^{11} A b^{5} c^{4} d^{9}+15 a^{10} A b^{6} c^{4} d^{9}-$$
$$21 \mathrm{i} a^{9} A b^{7} c^{4} d^{9}-27 a^{8} A b^{8} c^{4} d^{9}-9 \mathrm{i} a^{7} A b^{9} c^{4} d^{9}-15 a^{6} A b^{10} c^{4} d^{9}+21 \mathrm{i} a^{14} b^{2} B c^{4} d^{9}+37 a^{13} b^{3} B c^{4} d^{9}+59 \mathrm{i} a^{12} b^{4} B c^{4} d^{9}+$$
$$107 a^{11} b^{5} B c^{4} d^{9}+55 \mathrm{i} a^{10} b^{6} B c^{4} d^{9}+103 a^{9} b^{7} B c^{4} d^{9}+17 \mathrm{i} a^{8} b^{8} B c^{4} d^{9}+33 a^{7} b^{9} B c^{4} d^{9}-2 a^{16} c^{4} C d^{9}-10 \mathrm{i} a^{15} b c^{4} C d^{9}-28 a^{14} b^{2} c^{4} C d^{9}-$$
$$17 \mathrm{i} a^{13} b^{3} c^{4} C d^{9}-53 a^{12} b^{4} c^{4} C d^{9}+5 \mathrm{i} a^{11} b^{5} c^{4} C d^{9}-15 a^{10} b^{6} c^{4} C d^{9}+21 \mathrm{i} a^{9} b^{7} c^{4} C d^{9}+27 a^{8} b^{8} c^{4} C d^{9}+9 \mathrm{i} a^{7} b^{9} c^{4} C d^{9}+15 a^{6} b^{10} c^{4} C d^{9}-$$
$$2 \mathrm{i} a^{16} A c^{3} d^{10}-5 a^{15} A b c^{3} d^{10}-13 \mathrm{i} a^{14} A b^{2} c^{3} d^{10}-21 a^{13} A b^{3} c^{3} d^{10}-15 \mathrm{i} a^{12} A b^{4} c^{3} d^{10}-21 a^{11} A b^{5} c^{3} d^{10}+\mathrm{i} a^{10} A b^{6} c^{3} d^{10}+$$
$$a^{9} A b^{7} c^{3} d^{10}+5 \mathrm{i} a^{8} A b^{8} c^{3} d^{10}+6 a^{7} A b^{9} c^{3} d^{10}+a^{16} B c^{3} d^{10}-\mathrm{i} a^{15} b B c^{3} d^{10}-a^{14} b^{2} B c^{3} d^{10}-15 \mathrm{i} a^{13} b^{3} B c^{3} d^{10}-21 a^{12} b^{4} B c^{3} d^{10}-$$
$$27 \mathrm{i} a^{11} b^{5} B c^{3} d^{10}-35 a^{10} b^{6} B c^{3} d^{10}-13 \mathrm{i} a^{9} b^{7} B c^{3} d^{10}-16 a^{8} b^{8} B c^{3} d^{10}+2 \mathrm{i} a^{16} c^{3} C d^{10}+5 a^{15} b c^{3} C d^{10}+13 \mathrm{i} a^{14} b^{2} c^{3} C d^{10}+$$
$$21 a^{13} b^{3} c^{3} C d^{10}+15 \mathrm{i} a^{12} b^{4} c^{3} C d^{10}+21 a^{11} b^{5} c^{3} C d^{10}-\mathrm{i} a^{10} b^{6} c^{3} C d^{10}-a^{9} b^{7} c^{3} C d^{10}-5 \mathrm{i} a^{8} b^{8} c^{3} C d^{10}-6 a^{7} b^{9} c^{3} C d^{10}+$$
$$3 \mathrm{i} a^{15} A b c^{2} d^{11}+3 a^{14} A b^{2} c^{2} d^{11}+5 \mathrm{i} a^{13} A b^{3} c^{2} d^{11}+5 a^{12} A b^{4} c^{2} d^{11}+\mathrm{i} a^{11} A b^{5} c^{2} d^{11}+a^{10} A b^{6} c^{2} d^{11}-\mathrm{i} a^{9} A b^{7} c^{2} d^{11}-a^{8} A b^{8} c^{2} d^{11}-$$
$$\mathrm{i} a^{16} B c^{2} d^{11}-a^{15} b B c^{2} d^{11}+\mathrm{i} a^{14} b^{2} B c^{2} d^{11}+a^{13} b^{3} B c^{2} d^{11}+5 \mathrm{i} a^{12} b^{4} B c^{2} d^{11}+5 a^{11} b^{5} B c^{2} d^{11}+3 \mathrm{i} a^{10} b^{6} B c^{2} d^{11}+3 a^{9} b^{7} B c^{2} d^{11}-$$
$$3 \mathrm{i} a^{15} b c^{2} C d^{11}-3 a^{14} b^{2} c^{2} C d^{11}-5 \mathrm{i} a^{13} b^{3} c^{2} C d^{11}-5 a^{12} b^{4} c^{2} C d^{11}-\mathrm{i} a^{11} b^{5} c^{2} C d^{11}-a^{10} b^{6} c^{2} C d^{11}+\mathrm{i} a^{9} b^{7} c^{2} C d^{11}+a^{8} b^{8} c^{2} C d^{11}\big)$$
$$(e+f x)\, \mathrm{Sec}[e+f x]^{5}\, (a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^{3}\, (c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^{2}\big) \Big/$$
$$\left(a^{2} (\mathrm{i} a-b)^{3} (a-\mathrm{i} b)^{6} (a+\mathrm{i} b)^{2} c^{2} (c-\mathrm{i} d)^{4} (c+\mathrm{i} d)^{3} (-b c+a d)^{6} f (a+b \mathrm{Tan}[e+f x])^{3} (c+d \mathrm{Tan}[e+f x])^{2}\right)-$$
$$\frac{1}{\left(a^{2}+b^{2}\right)^{3} (-b c+a d)^{4} f (a+b \mathrm{Tan}[e+f x])^{3} (c+d \mathrm{Tan}[e+f x])^{2}}$$
$$\mathrm{i}$$
$$\left(3 a^{2} A b^{5} c^{2}-A b^{7} c^{2}-a^{3} b^{4} B c^{2}+3 a b^{6} B c^{2}-3 a^{2} b^{5} c^{2} C+b^{7} c^{2} C-10 a^{3} A b^{4} c d-2 a A b^{6} c d+4 a^{4} b^{3} B c d-6 a^{2} b^{5} B c d-2 b^{7} B c d+\right.$$
$$\left.10 a^{3} b^{4} c C d+2 a b^{6} c C d+10 a^{4} A b^{3} d^{2}+9 a^{2} A b^{5} d^{2}+3 A b^{7} d^{2}-6 a^{5} b^{2} B d^{2}-3 a^{3} b^{4} B d^{2}-a b^{6} B d^{2}+3 a^{6} b C d^{2}-a^{4} b^{3} C d^{2}\right)$$
$$\mathrm{ArcTan}[\mathrm{Tan}[e+f x]]\, \mathrm{Sec}[e+f x]^{5}\, (a \mathrm{Cos}[e+f x]+b \mathrm{Sin}[e+f x])^{3}\, (c \mathrm{Cos}[e+f x]+d \mathrm{Sin}[e+f x])^{2}-$$

$$\left(i\left(-3 b c^4 C d^2+4 b B c^3 d^3-5 A b c^2 d^4-a B c^2 d^4-b c^2 C d^4+2 a A c d^5+2 b B c d^5-2 a c C d^5-3 A b d^6+a B d^6\right)\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)\Big/\left((b c-a d)^4\left(c^2+d^2\right)^2 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\right)+\frac{1}{2\left(a^2+b^2\right)^3(-b c+a d)^4 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2}\left(3 a^2 A b^5 c^2-A b^7 c^2-a^3 b^4 B c^2+3 a b^6 B c^2-3 a^2 b^5 c^2 C+b^7 c^2 C-10 a^3 A b^4 c d-2 a A b^6 c d+4 a^4 b^3 B c d-6 a^2 b^5 B c d-2 b^7 B c d+10 a^3 b^4 c C d+2 a b^6 c C d+10 a^4 A b^3 d^2+9 a^2 A b^5 d^2+3 A b^7 d^2-6 a^5 b^2 B d^2-3 a^3 b^4 B d^2-a b^6 B d^2+3 a^6 b C d^2-a^4 b^3 C d^2\right)\text{Log}\left[(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2+\left(\left(-3 b c^4 C d^2+4 b B c^3 d^3-5 A b c^2 d^4-a B c^2 d^4-b c^2 C d^4+2 a A c d^5+2 b B c d^5-2 a c C d^5-3 A b d^6+a B d^6\right)\text{Log}\left[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)\Big/\left(2\,(b c-a d)^4\left(c^2+d^2\right)^2 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\right)+\left(\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\left(-3 a A b^5 c\,\text{Sin}[e+f x]+2 a^2 b^4 B c\,\text{Sin}[e+f x]-b^6 B c\,\text{Sin}[e+f x]-a^3 b^3 c C\,\text{Sin}[e+f x]+2 a b^5 c C\,\text{Sin}[e+f x]+5 a^2 A b^4 d\,\text{Sin}[e+f x]+2 A b^6 d\,\text{Sin}[e+f x]-4 a^3 b^3 B d\,\text{Sin}[e+f x]-a b^5 B d\,\text{Sin}[e+f x]+3 a^4 b^2 C d\,\text{Sin}[e+f x]\right)\right)\Big/\left(a\,(a-i b)^2\,(a+i b)^2\,(-b c+a d)^3 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\right)+\left(\text{Sec}[e+f x]^5\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^3\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\left(-c^2 C d^3\,\text{Sin}[e+f x]+B c d^4\,\text{Sin}[e+f x]-A d^5\,\text{Sin}[e+f x]\right)\right)\Big/\left(c\,(c-i d)\,(c+i d)\,(b c-a d)^3 f\,(a+b\,\text{Tan}[e+f x])^3\,(c+d\,\text{Tan}[e+f x])^2\right)$$

- **Problem 85: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[e+f x])^2\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 597 leaves, 6 steps):

$$-\frac{1}{\left(c^2+d^2\right)^3}\left(b^2\left(A c^3-c^3 C+3 B c^2 d-3 A c d^2+3 c C d^2-B d^3\right)+a^2\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A\left(c^3-3 c d^2\right)\right)-2 a b\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right)x-\frac{1}{\left(c^2+d^2\right)^3 f}\left(2 a b\left(A c^3-c^3 C+3 B c^2 d-3 A c d^2+3 c C d^2-B d^3\right)-a^2\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)+b^2\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right)\text{Log}[\text{Cos}[e+f x]]-\frac{1}{d^3\left(c^2+d^2\right)^3 f}\left(2 a b d^3\left(A c^3-c^3 C+3 B c^2 d-3 A c d^2+3 c C d^2-B d^3\right)-b^2\left(c^6 C+3 c^4 C d^2+B c^3 d^3-3 c^2 (A-2 C) d^4-3 B c d^5+A d^6\right)-a^2 d^3\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right)\text{Log}[c+d\,\text{Tan}[e+f x]]-\frac{\left(c^2 C-B c d+A d^2\right)(a+b\,\text{Tan}[e+f x])^2}{2 d\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^2}+\frac{(b c-a d)\left(b\left(c^4 C-c^2 (A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right)}{d^3\left(c^2+d^2\right)^2 f\,(c+d\,\text{Tan}[e+f x])}$$

Result (type 3, 2499 leaves):

$$\Big(\big(-b^2 c^4 C+b^2 B c^3 d+2 a b c^3 C d-A b^2 c^2 d^2-2 a b B c^2 d^2-a^2 c^2 C d^2+2 a A b c d^3+a^2 B c d^3-a^2 A d^4\big)\,\text{Sec}[e+f x]$$

$$(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\Big(2\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)+$$

$$\Big(\big(a^2 A c^3-A b^2 c^3-2 a b B c^3-a^2 c^3 C+b^2 c^3 C+6 a A b c^2 d+3 a^2 B c^2 d-3 b^2 B c^2 d-6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2+6 a b B c d^2+$$

$$3 a^2 c C d^2-3 b^2 c C d^2-2 a A b d^3-a^2 B d^3+b^2 B d^3+2 a b C d^3\big)\,(e+f x)\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$

$$\Big((c-\mathrm{i}\,d)^3\,(c+\mathrm{i}\,d)^3\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)+$$

$$\Big(\big(\mathrm{i}\,b^2 c^{13} C d^2+b^2 c^{12} C d^3+5\,\mathrm{i}\,b^2 c^{11} C d^4-2\,\mathrm{i}\,a A b c^{10} d^5-\mathrm{i}\,a^2 B c^{10} d^5+\mathrm{i}\,b^2 B c^{10} d^5+2\,\mathrm{i}\,a b c^{10} C d^5+5 b^2 c^{10} C d^5+3\,\mathrm{i}\,a^2 A c^9 d^6-2 a A b c^9 d^6-$$

$$3\,\mathrm{i}\,A b^2 c^9 d^6-a^2 B c^9 d^6-6\,\mathrm{i}\,a b B c^9 d^6+b^2 B c^9 d^6-3\,\mathrm{i}\,a^2 c^9 C d^6+2 a b c^9 C d^6+13\,\mathrm{i}\,b^2 c^9 C d^6+3 a^2 A c^8 d^7+2\,\mathrm{i}\,a A b c^8 d^7-$$

$$3 A b^2 c^8 d^7+\mathrm{i}\,a^2 B c^8 d^7-6 a b B c^8 d^7-\mathrm{i}\,b^2 B c^8 d^7-3 a^2 c^8 C d^7-2\,\mathrm{i}\,a b c^8 C d^7+13 b^2 c^8 C d^7+5\,\mathrm{i}\,a^2 A c^7 d^8+2 a A b c^7 d^8-$$

$$5\,\mathrm{i}\,A b^2 c^7 d^8+a^2 B c^7 d^8-10\,\mathrm{i}\,a b B c^7 d^8-b^2 B c^7 d^8-5\,\mathrm{i}\,a^2 c^7 C d^8-2 a b c^7 C d^8+15\,\mathrm{i}\,b^2 c^7 C d^8+5 a^2 A c^6 d^9+10\,\mathrm{i}\,a A b c^6 d^9-$$

$$5 A b^2 c^6 d^9+5\,\mathrm{i}\,a^2 B c^6 d^9-10 a b B c^6 d^9-5\,\mathrm{i}\,b^2 B c^6 d^9-5 a^2 c^6 C d^9-10\,\mathrm{i}\,a b c^6 C d^9+15 b^2 c^6 C d^9+\mathrm{i}\,a^2 A c^5 d^{10}+10 a A b c^5 d^{10}-$$

$$\mathrm{i}\,A b^2 c^5 d^{10}+5 a^2 B c^5 d^{10}-2\,\mathrm{i}\,a b B c^5 d^{10}-5 b^2 B c^5 d^{10}-\mathrm{i}\,a^2 c^5 C d^{10}-10 a b c^5 C d^{10}+6\,\mathrm{i}\,b^2 c^5 C d^{10}+a^2 A c^4 d^{11}+6\,\mathrm{i}\,a A b c^4 d^{11}-$$

$$A b^2 c^4 d^{11}+3\,\mathrm{i}\,a^2 B c^4 d^{11}-2 a b B c^4 d^{11}-3\,\mathrm{i}\,b^2 B c^4 d^{11}-a^2 c^4 C d^{11}-6\,\mathrm{i}\,a b c^4 C d^{11}+6 b^2 c^4 C d^{11}-\mathrm{i}\,a^2 A c^3 d^{12}+6 a A b c^3 d^{12}+$$

$$\mathrm{i}\,A b^2 c^3 d^{12}+3 a^2 B c^3 d^{12}+2\,\mathrm{i}\,a b B c^3 d^{12}-3 b^2 B c^3 d^{12}+\mathrm{i}\,a^2 c^3 C d^{12}-6 a b c^3 C d^{12}-a^2 A c^2 d^{13}+A b^2 c^2 d^{13}+2 a b B c^2 d^{13}+a^2 c^2 C d^{13}\big)$$

$$(e+f x)\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2\Big)\Big/$$

$$\Big(c^2\,(c-\mathrm{i}\,d)^6\,(c+\mathrm{i}\,d)^5\,d^5\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)-$$

$$\frac{1}{d^3\,\left(c^2+d^2\right)^3\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3}$$

$$\mathrm{i}\,\big(b^2 c^6 C+3 b^2 c^4 C d^2-2 a A b c^3 d^3-a^2 B c^3 d^3+b^2 B c^3 d^3+2 a b c^3 C d^3+3 a^2 A c^2 d^4-3 A b^2 c^2 d^4-6 a b B c^2 d^4-$$

$$3 a^2 c^2 C d^4+6 b^2 c^2 C d^4+6 a A b c d^5+3 a^2 B c d^5-3 b^2 B c d^5-6 a b c C d^5-a^2 A d^6+A b^2 d^6+2 a b B d^6+a^2 C d^6\big)$$

$$\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2-$$

$$\frac{b^2 C\,\text{Log}[\text{Cos}[e+f x]]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2}{d^3\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3}+$$

$$\frac{1}{2\,d^3\,\left(c^2+d^2\right)^3\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3}$$

$$\big(b^2 c^6 C+3 b^2 c^4 C d^2-2 a A b c^3 d^3-a^2 B c^3 d^3+b^2 B c^3 d^3+2 a b c^3 C d^3+3 a^2 A c^2 d^4-3 A b^2 c^2 d^4-6 a b B c^2 d^4-$$

$$3 a^2 c^2 C d^4+6 b^2 c^2 C d^4+6 a A b c d^5+3 a^2 B c d^5-3 b^2 B c d^5-6 a b c C d^5-a^2 A d^6+A b^2 d^6+2 a b B d^6+a^2 C d^6\big)$$

$$\text{Log}\big[(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\big]\,\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^3\,(a+b\,\text{Tan}[e+f x])^2+$$

$$\Big(\text{Sec}[e+f x]\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\,\big(-b^2 c^5 C\,\text{Sin}[e+f x]+A b^2 c^3 d^2\,\text{Sin}[e+f x]+2 a b B c^3 d^2\,\text{Sin}[e+f x]+a^2 c^3 C d^2\,\text{Sin}[e+f x]-$$

$$4 b^2 c^3 C d^2\,\text{Sin}[e+f x]-4 a A b c^2 d^3\,\text{Sin}[e+f x]-2 a^2 B c^2 d^3\,\text{Sin}[e+f x]+3 b^2 B c^2 d^3\,\text{Sin}[e+f x]+6 a b c^2 C d^3\,\text{Sin}[e+f x]+$$

$$3 a^2 A c d^4\,\text{Sin}[e+f x]-2 A b^2 c d^4\,\text{Sin}[e+f x]-4 a b B c d^4\,\text{Sin}[e+f x]-2 a^2 c C d^4\,\text{Sin}[e+f x]+2 a A b d^5\,\text{Sin}[e+f x]+a^2 B d^5\,\text{Sin}[e+f x]\big)$$

$$(a+b\,\text{Tan}[e+f x])^2\Big)\Big/\Big(c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\,f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])^2\,(c+d\,\text{Tan}[e+f x])^3\Big)$$

Problem 86: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[e+f x])\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 352 leaves, 4 steps):

$$-\frac{\left(a\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A\left(c^3-3 c d^2\right)\right)-b\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right) x}{\left(c^2+d^2\right)^3}+\frac{1}{\left(c^2+d^2\right)^3 f}$$
$$\left(b\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3\right)-a\left(B c^3+3 c^2 C d-3 B c d^2-C d^3\right)+A\left(a d\left(3 c^2-d^2\right)-b\left(c^3-3 c d^2\right)\right)\right) \text{Log}[c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x]]+$$
$$\frac{(b c-a d)\left(c^2 C-B c d+A d^2\right)}{2 d^2\left(c^2+d^2\right) f\,(c+d \,\text{Tan}[e+f x])^2}-\frac{b\left(c^4 C-c^2(A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)}{d^2\left(c^2+d^2\right)^2 f\,(c+d \,\text{Tan}[e+f x])}$$

Result (type 3, 2622 leaves):

$$\Big(\big(-\text{i} A b c^{10}-\text{i} a B c^{10}+\text{i} b c^{10} C+3 \text{i} a A c^9 d-A b c^9 d-a B c^9 d-3 \text{i} b B c^9 d-3 \text{i} a c^9 C d+b c^9 C d+3 a A c^8 d^2+\text{i} A b c^8 d^2+\text{i} a B c^8 d^2-3 b B c^8 d^2-$$
$$3 a c^8 C d^2-\text{i} b c^8 C d^2+5 \text{i} a A c^7 d^3+A b c^7 d^3+a B c^7 d^3-5 \text{i} b B c^7 d^3-5 \text{i} a c^7 C d^3-b c^7 C d^3+5 a A c^6 d^4+5 \text{i} A b c^6 d^4+$$
$$5 \text{i} a B c^6 d^4-5 b B c^6 d^4-5 a c^6 C d^4-5 \text{i} b c^6 C d^4+\text{i} a A c^5 d^5+5 A b c^5 d^5+5 a B c^5 d^5-\text{i} b B c^5 d^5-\text{i} a c^5 C d^5-5 b c^5 C d^5+$$
$$a A c^4 d^6+3 \text{i} A b c^4 d^6+3 \text{i} a B c^4 d^6-b B c^4 d^6-a c^4 C d^6-3 \text{i} b c^4 C d^6-\text{i} a A c^3 d^7+3 A b c^3 d^7+3 a B c^3 d^7+\text{i} b B c^3 d^7+\text{i} a c^3 C d^7-$$
$$3 b c^3 C d^7-a A c^2 d^8+b B c^2 d^8+a c^2 C d^8\big)\,(e+f x)\,\text{Sec}[e+f x]^2\,(c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x])^3\,(a+b \,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(c^2\,(c-\text{i} d)^6\,(c+\text{i} d)^5 f\,(a \,\text{Cos}[e+f x]+b \,\text{Sin}[e+f x])\,(c+d \,\text{Tan}[e+f x])^3\Big)-$$
$$\Big(\text{i}\,\big(-A b c^3-a B c^3+b c^3 C+3 a A c^2 d-3 b B c^2 d-3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2-a A d^3+b B d^3+a C d^3\big)$$
$$\text{ArcTan}[\text{Tan}[e+f x]]\,\text{Sec}[e+f x]^2\,(c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x])^3\,(a+b \,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(\left(c^2+d^2\right)^3 f\,(a \,\text{Cos}[e+f x]+b \,\text{Sin}[e+f x])\,(c+d \,\text{Tan}[e+f x])^3\Big)+$$
$$\Big(\big(-A b c^3-a B c^3+b c^3 C+3 a A c^2 d-3 b B c^2 d-3 a c^2 C d+3 A b c d^2+3 a B c d^2-3 b c C d^2-a A d^3+b B d^3+a C d^3\big)$$
$$\text{Log}\left[(c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x])^2\right]\text{Sec}[e+f x]^2\,(c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x])^3\,(a+b \,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(2\left(c^2+d^2\right)^3 f\,(a \,\text{Cos}[e+f x]+b \,\text{Sin}[e+f x])\,(c+d \,\text{Tan}[e+f x])^3\Big)+$$
$$\Big(\text{Sec}[e+f x]^2\,(c \,\text{Cos}[e+f x]+d \,\text{Sin}[e+f x])\,\big(b c^6 C-A b c^4 d^2-a B c^4 d^2+4 b c^4 C d^2+2 a A c^3 d^3-2 b B c^3 d^3-2 a c^3 C d^3+3 b c^2 C d^4+2 a A c d^5-$$
$$2 b B c d^5-2 a c C d^5+A b d^6+a B d^6+a A c^6 (e+f x)-b B c^6 (e+f x)-a c^6 C (e+f x)+3 A b c^5 d (e+f x)+3 a B c^5 d (e+f x)-$$
$$3 b c^5 C d (e+f x)-2 a A c^4 d^2 (e+f x)+2 b B c^4 d^2 (e+f x)+2 a c^4 C d^2 (e+f x)+2 A b c^3 d^3 (e+f x)+2 a B c^3 d^3 (e+f x)-$$
$$2 b c^3 C d^3 (e+f x)-3 a A c^2 d^4 (e+f x)+3 b B c^2 d^4 (e+f x)+3 a c^2 C d^4 (e+f x)-A b c d^5 (e+f x)-a B c d^5 (e+f x)+$$
$$b c C d^5 (e+f x)-b B c^5 d \,\text{Cos}[2 (e+f x)]-a c^5 C d \,\text{Cos}[2 (e+f x)]+2 A b c^4 d^2 \,\text{Cos}[2 (e+f x)]+2 a B c^4 d^2 \,\text{Cos}[2 (e+f x)]-$$
$$3 b c^4 C d^2 \,\text{Cos}[2 (e+f x)]-3 a A c^3 d^3 \,\text{Cos}[2 (e+f x)]+b B c^3 d^3 \,\text{Cos}[2 (e+f x)]+a c^3 C d^3 \,\text{Cos}[2 (e+f x)]+A b c^2 d^4 \,\text{Cos}[2 (e+f x)]+$$
$$a B c^2 d^4 \,\text{Cos}[2 (e+f x)]-3 b c^2 C d^4 \,\text{Cos}[2 (e+f x)]-3 a A c d^5 \,\text{Cos}[2 (e+f x)]+2 b B c d^5 \,\text{Cos}[2 (e+f x)]+2 a c C d^5 \,\text{Cos}[2 (e+f x)]-$$
$$A b d^6 \,\text{Cos}[2 (e+f x)]-a B d^6 \,\text{Cos}[2 (e+f x)]+a A c^6 (e+f x) \,\text{Cos}[2 (e+f x)]-b B c^6 (e+f x) \,\text{Cos}[2 (e+f x)]-$$
$$a c^6 C (e+f x) \,\text{Cos}[2 (e+f x)]+3 A b c^5 d (e+f x) \,\text{Cos}[2 (e+f x)]+3 a B c^5 d (e+f x) \,\text{Cos}[2 (e+f x)]-3 b c^5 C d (e+f x) \,\text{Cos}[2 (e+f x)]-$$
$$4 a A c^4 d^2 (e+f x) \,\text{Cos}[2 (e+f x)]+4 b B c^4 d^2 (e+f x) \,\text{Cos}[2 (e+f x)]+4 a c^4 C d^2 (e+f x) \,\text{Cos}[2 (e+f x)]-$$
$$4 A b c^3 d^3 (e+f x) \,\text{Cos}[2 (e+f x)]-4 a B c^3 d^3 (e+f x) \,\text{Cos}[2 (e+f x)]+4 b c^3 C d^3 (e+f x) \,\text{Cos}[2 (e+f x)]+$$
$$3 a A c^2 d^4 (e+f x) \,\text{Cos}[2 (e+f x)]-3 b B c^2 d^4 (e+f x) \,\text{Cos}[2 (e+f x)]-3 a c^2 C d^4 (e+f x) \,\text{Cos}[2 (e+f x)]+$$
$$A b c d^5 (e+f x) \,\text{Cos}[2 (e+f x)]+a B c d^5 (e+f x) \,\text{Cos}[2 (e+f x)]-b c C d^5 (e+f x) \,\text{Cos}[2 (e+f x)]+b B c^6 \,\text{Sin}[2 (e+f x)]+$$
$$a c^6 C \,\text{Sin}[2 (e+f x)]-2 A b c^5 d \,\text{Sin}[2 (e+f x)]-2 a B c^5 d \,\text{Sin}[2 (e+f x)]+3 b c^5 C d \,\text{Sin}[2 (e+f x)]+3 a A c^4 d^2 \,\text{Sin}[2 (e+f x)]-$$
$$b B c^4 d^2 \,\text{Sin}[2 (e+f x)]-a c^4 C d^2 \,\text{Sin}[2 (e+f x)]-A b c^3 d^3 \,\text{Sin}[2 (e+f x)]-a B c^3 d^3 \,\text{Sin}[2 (e+f x)]+3 b c^3 C d^3 \,\text{Sin}[2 (e+f x)]+$$
$$3 a A c^2 d^4 \,\text{Sin}[2 (e+f x)]-2 b B c^2 d^4 \,\text{Sin}[2 (e+f x)]-2 a c^2 C d^4 \,\text{Sin}[2 (e+f x)]+A b c d^5 \,\text{Sin}[2 (e+f x)]+$$
$$a B c d^5 \,\text{Sin}[2 (e+f x)]+2 a A c^5 d (e+f x) \,\text{Sin}[2 (e+f x)]-2 b B c^5 d (e+f x) \,\text{Sin}[2 (e+f x)]-2 a c^5 C d (e+f x) \,\text{Sin}[2 (e+f x)]+$$
$$6 A b c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)]+6 a B c^4 d^2 (e+f x) \,\text{Sin}[2 (e+f x)]-6 b c^4 C d^2 (e+f x) \,\text{Sin}[2 (e+f x)]-$$
$$6 a A c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)]+6 b B c^3 d^3 (e+f x) \,\text{Sin}[2 (e+f x)]+6 a c^3 C d^3 (e+f x) \,\text{Sin}[2 (e+f x)]-$$
$$2 A b c^2 d^4 (e+f x) \,\text{Sin}[2 (e+f x)]-2 a B c^2 d^4 (e+f x) \,\text{Sin}[2 (e+f x)]+2 b c^2 C d^4 (e+f x) \,\text{Sin}[2 (e+f x)]\big)\,(a+b \,\text{Tan}[e+f x])\Big)\Big/$$
$$\Big(2 c\,(c-\text{i} d)^3\,(c+\text{i} d)^3 f\,(a \,\text{Cos}[e+f x]+b \,\text{Sin}[e+f x])\,(c+d \,\text{Tan}[e+f x])^3\Big)$$

- **Problem 87: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{A + B\,\text{Tan}[e + f\,x] + C\,\text{Tan}[e + f\,x]^2}{(c + d\,\text{Tan}[e + f\,x])^3}\,dx$$

Optimal (type 3, 209 leaves, 4 steps):

$$-\frac{\left(c^3\,C - 3\,B\,c^2\,d - 3\,c\,C\,d^2 + B\,d^3 - A\,\left(c^3 - 3\,c\,d^2\right)\right)\,x}{\left(c^2 + d^2\right)^3} + \frac{\left((A - C)\,d\,\left(3\,c^2 - d^2\right) - B\,\left(c^3 - 3\,c\,d^2\right)\right)\,\text{Log}[c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x]]}{\left(c^2 + d^2\right)^3\,f} - \frac{c^2\,C - B\,c\,d + A\,d^2}{2\,d\,\left(c^2 + d^2\right)\,f\,(c + d\,\text{Tan}[e + f\,x])^2} - \frac{2\,c\,(A - C)\,d - B\,\left(c^2 - d^2\right)}{\left(c^2 + d^2\right)^2\,f\,(c + d\,\text{Tan}[e + f\,x])}$$

Result (type 3, 396 leaves):

$$\frac{1}{2\,\left(c^2 + d^2\right)^3\,f\,(c + d\,\text{Tan}[e + f\,x])^3}\,\text{Sec}[e + f\,x]^3\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])$$
$$\left(-d\,\left(c^2 + d^2\right)\,\left(c^2\,C - B\,c\,d + A\,d^2\right) + \frac{2\,\left(c^2 + d^2\right)\,\left(c^3\,C - 2\,B\,c^2\,d + c\,(3\,A - 2\,C)\,d^2 + B\,d^3\right)\,\text{Sin}[e + f\,x]\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])}{c} + \right.$$
$$2\,\left(-c^3\,C + 3\,B\,c^2\,d + 3\,c\,C\,d^2 - B\,d^3 + A\,\left(c^3 - 3\,c\,d^2\right)\right)\,(e + f\,x)\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])^2 - 2\,i\,\left((A - C)\,d\,\left(-3\,c^2 + d^2\right) + B\,\left(c^3 - 3\,c\,d^2\right)\right)$$
$$(e + f\,x)\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])^2 + 2\,i\,\left((A - C)\,d\,\left(-3\,c^2 + d^2\right) + B\,\left(c^3 - 3\,c\,d^2\right)\right)\,\text{ArcTan}[\text{Tan}[e + f\,x]]\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])^2 -$$
$$\left.\left((A - C)\,d\,\left(-3\,c^2 + d^2\right) + B\,\left(c^3 - 3\,c\,d^2\right)\right)\,\text{Log}\left[(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])^2\right]\,(c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x])^2\right)$$

- **Problem 88: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{A + B\,\text{Tan}[e + f\,x] + C\,\text{Tan}[e + f\,x]^2}{(a + b\,\text{Tan}[e + f\,x])\,(c + d\,\text{Tan}[e + f\,x])^3}\,dx$$

Optimal (type 3, 487 leaves, 5 steps):

$$-\frac{\left(a\,\left(c^3\,C - 3\,B\,c^2\,d - 3\,c\,C\,d^2 + B\,d^3 - A\,\left(c^3 - 3\,c\,d^2\right)\right) + b\,\left((A - C)\,d\,\left(3\,c^2 - d^2\right) - B\,\left(c^3 - 3\,c\,d^2\right)\right)\right)\,x}{\left(a^2 + b^2\right)\,\left(c^2 + d^2\right)^3} +$$
$$\frac{b^2\,\left(A\,b^2 - a\,(b\,B - a\,C)\right)\,\text{Log}[a\,\text{Cos}[e + f\,x] + b\,\text{Sin}[e + f\,x]]}{\left(a^2 + b^2\right)\,(b\,c - a\,d)^3\,f} - \frac{1}{(b\,c - a\,d)^3\,\left(c^2 + d^2\right)^3\,f}$$
$$\left(b^2\,\left(c^6\,C - 3\,B\,c^5\,d + 3\,c^4\,(2\,A - C)\,d^2 + B\,c^3\,d^3 + 3\,A\,c^2\,d^4 + A\,d^6\right) + a^2\,d^3\,\left((A - C)\,d\,\left(3\,c^2 - d^2\right) - B\,\left(c^3 - 3\,c\,d^2\right)\right) - \right.$$
$$\left.a\,b\,d^2\,\left(8\,c^3\,(A - C)\,d - B\,\left(3\,c^4 - 6\,c^2\,d^2 - d^4\right)\right)\right)\,\text{Log}[c\,\text{Cos}[e + f\,x] + d\,\text{Sin}[e + f\,x]] +$$
$$\frac{c^2\,C - B\,c\,d + A\,d^2}{2\,(b\,c - a\,d)\,\left(c^2 + d^2\right)\,f\,(c + d\,\text{Tan}[e + f\,x])^2} + \frac{b\,\left(c^4\,C - 2\,B\,c^3\,d + c^2\,(3\,A - C)\,d^2 + A\,d^4\right) - a\,d^2\,\left(2\,c\,(A - C)\,d - B\,\left(c^2 - d^2\right)\right)}{(b\,c - a\,d)^2\,\left(c^2 + d^2\right)^2\,f\,(c + d\,\text{Tan}[e + f\,x])}$$

Result (type 3, 7733 leaves):

$$\left(\left(-a^3\,A\,b^5\,c^{14} + i\,a^2\,A\,b^6\,c^{14} + a^4\,b^4\,B\,c^{14} - i\,a^3\,b^5\,B\,c^{14} + a^3\,b^5\,c^{14}\,C - i\,a^2\,b^6\,c^{14}\,C + a^4\,A\,b^4\,c^{13}\,d + a^2\,A\,b^6\,c^{13}\,d - 4\,a^5\,b^3\,B\,c^{13}\,d + 3\,i\,a^4\,b^4\,B\,c^{13}\,d - \right.\right.$$
$$4\,a^3\,b^5\,B\,c^{13}\,d + 3\,i\,a^2\,b^6\,B\,c^{13}\,d - a^4\,b^4\,c^{13}\,C\,d - a^2\,b^6\,c^{13}\,C\,d + 6\,a^5\,A\,b^3\,c^{12}\,d^2 - 7\,i\,a^4\,A\,b^4\,c^{12}\,d^2 - i\,a^2\,A\,b^6\,c^{12}\,d^2 + 6\,a^6\,b^2\,B\,c^{12}\,d^2 -$$

$$2\,i\,a^5 b^3 B c^{12} d^2 + 15 a^4 b^4 B c^{12} d^2 - 8\,i\,a^3 b^5 B c^{12} d^2 + 3 a^2 b^6 B c^{12} d^2 - 6 a^5 b^3 c^{12} C d^2 + 7\,i\,a^4 b^4 c^{12} C d^2 + i\,a^2 b^6 c^{12} C d^2 - 14 a^6 A b^2 c^{11} d^3 +$$
$$8\,i\,a^5 A b^3 c^{11} d^3 - 15 a^4 A b^4 c^{11} d^3 + 8\,i\,a^3 A b^5 c^{11} d^3 - a^2 A b^6 c^{11} d^3 - 4 a^7 b B c^{11} d^3 - 2\,i\,a^6 b^2 B c^{11} d^3 - 20 a^5 b^3 B c^{11} d^3 + 3\,i\,a^4 b^4 B c^{11} d^3 -$$
$$16 a^3 b^5 B c^{11} d^3 + 5\,i\,a^2 b^6 B c^{11} d^3 + 14 a^6 b^2 c^{11} C d^3 - 8\,i\,a^5 b^3 c^{11} C d^3 + 15 a^4 b^4 c^{11} C d^3 - 8\,i\,a^3 b^5 c^{11} C d^3 + a^2 b^6 c^{11} C d^3 + 11 a^7 A b c^{10} d^4 +$$
$$3\,i\,a^6 A b^2 c^{10} d^4 + 40 a^5 A b^3 c^{10} d^4 - 17\,i\,a^4 A b^4 c^{10} d^4 + 14 a^3 A b^5 c^{10} d^4 - 5\,i\,a^2 A b^6 c^{10} d^4 + a^8 B c^{10} d^4 + 3\,i\,a^7 b B c^{10} d^4 + 10 a^6 b^2 B c^{10} d^4 +$$
$$8\,i\,a^5 b^3 B c^{10} d^4 + 29 a^4 b^4 B c^{10} d^4 - 10\,i\,a^3 b^5 B c^{10} d^4 + 5 a^2 b^6 B c^{10} d^4 - 11 a^7 b c^{10} C d^4 - 3\,i\,a^6 b^2 c^{10} C d^4 - 40 a^5 b^3 c^{10} C d^4 +$$
$$17\,i\,a^4 b^4 c^{10} C d^4 - 14 a^3 b^5 c^{10} C d^4 + 5\,i\,a^2 b^6 c^{10} C d^4 - 3 a^8 A c^9 d^5 - 8\,i\,a^7 A b c^9 d^5 - 45 a^6 A b^2 c^9 d^5 + 8\,i\,a^5 A b^3 c^9 d^5 - 47 a^4 A b^4 c^9 d^5 +$$
$$16\,i\,a^3 A b^5 c^9 d^5 - 5 a^2 A b^6 c^9 d^5 - i\,a^8 B c^9 d^5 - 7\,i\,a^6 b^2 B c^9 d^5 - 16 a^5 b^3 B c^9 d^5 - 5\,i\,a^4 b^4 B c^9 d^5 - 16 a^3 b^5 B c^9 d^5 + i\,a^2 b^6 B c^9 d^5 +$$
$$3 a^8 c^9 C d^5 + 8\,i\,a^7 b c^9 C d^5 + 45 a^6 b^2 c^9 C d^5 - 8\,i\,a^5 b^3 c^9 C d^5 + 47 a^4 b^4 c^9 C d^5 - 16\,i\,a^3 b^5 c^9 C d^5 + 5 a^2 b^6 c^9 C d^5 + 3\,i\,a^8 A c^8 d^6 +$$
$$24 a^7 A b c^8 d^6 + 13\,i\,a^6 A b^2 c^8 d^6 + 68 a^5 A b^3 c^8 d^6 - 13\,i\,a^4 A b^4 c^8 d^6 + 24 a^3 A b^5 c^8 d^6 - 3\,i\,a^2 A b^6 c^8 d^6 - a^8 B c^8 d^6 - 11 a^6 b^2 B c^8 d^6 +$$
$$20\,i\,a^5 b^3 B c^8 d^6 + 11 a^4 b^4 B c^8 d^6 + a^2 b^6 B c^8 d^6 - 3\,i\,a^8 c^8 C d^6 - 24 a^7 b c^8 C d^6 - 13\,i\,a^6 b^2 c^8 C d^6 - 68 a^5 b^3 c^8 C d^6 + 13\,i\,a^4 b^4 c^8 C d^6 -$$
$$24 a^3 b^5 c^8 C d^6 + 3\,i\,a^2 b^6 c^8 C d^6 - 5 a^8 A c^7 d^7 - 16\,i\,a^7 A b c^7 d^7 - 47 a^6 A b^2 c^7 d^7 - 8\,i\,a^5 A b^3 c^7 d^7 - 45 a^4 A b^4 c^7 d^7 + 8\,i\,a^3 A b^5 c^7 d^7 -$$
$$3 a^2 A b^6 c^7 d^7 + i\,a^8 B c^7 d^7 + 16 a^7 b B c^7 d^7 - 5\,i\,a^6 b^2 B c^7 d^7 + 16 a^5 b^3 B c^7 d^7 - 7\,i\,a^4 b^4 B c^7 d^7 - i\,a^2 b^6 B c^7 d^7 + 5 a^8 c^7 C d^7 +$$
$$16\,i\,a^7 b c^7 C d^7 + 47 a^6 b^2 c^7 C d^7 + 8\,i\,a^5 b^3 c^7 C d^7 + 45 a^4 b^4 c^7 C d^7 - 8\,i\,a^3 b^5 c^7 C d^7 + 3 a^2 b^6 c^7 C d^7 + 5\,i\,a^8 A c^6 d^8 + 14 a^7 A b c^6 d^8 +$$
$$17\,i\,a^6 A b^2 c^6 d^8 + 40 a^5 A b^3 c^6 d^8 - 3\,i\,a^4 A b^4 c^6 d^8 + 11 a^3 A b^5 c^6 d^8 - 5 a^8 B c^6 d^8 - 10\,i\,a^7 b B c^6 d^8 - 29 a^6 b^2 B c^6 d^8 + 8\,i\,a^5 b^3 B c^6 d^8 -$$
$$10 a^4 b^4 B c^6 d^8 + 3\,i\,a^3 b^5 B c^6 d^8 - a^2 b^6 B c^6 d^8 - 5\,i\,a^8 c^6 C d^8 - 14 a^7 b c^6 C d^8 - 17\,i\,a^6 b^2 c^6 C d^8 - 40 a^5 b^3 c^6 C d^8 + 3\,i\,a^4 b^4 c^6 C d^8 -$$
$$11 a^3 b^5 c^6 C d^8 - a^8 A c^5 d^9 - 8\,i\,a^7 A b c^5 d^9 - 15 a^6 A b^2 c^5 d^9 - 8\,i\,a^5 A b^3 c^5 d^9 - 14 a^4 A b^4 c^5 d^9 + 5\,i\,a^8 B c^5 d^9 + 16 a^7 b B c^5 d^9 +$$
$$3\,i\,a^6 b^2 B c^5 d^9 + 20 a^5 b^3 B c^5 d^9 - 2\,i\,a^4 b^4 B c^5 d^9 + 4 a^3 b^5 B c^5 d^9 + a^8 c^5 C d^9 + 8\,i\,a^7 b c^5 C d^9 + 15 a^6 b^2 c^5 C d^9 + 8\,i\,a^5 b^3 c^5 C d^9 +$$
$$14 a^4 b^4 c^5 C d^9 + i\,a^8 A c^4 d^{10} + 7\,i\,a^6 A b^2 c^4 d^{10} + 6 a^5 A b^3 c^4 d^{10} - 3 a^8 B c^4 d^{10} - 8\,i\,a^7 b B c^4 d^{10} - 15 a^6 b^2 B c^4 d^{10} - 2\,i\,a^5 b^3 B c^4 d^{10} -$$
$$6 a^4 b^4 B c^4 d^{10} - i\,a^8 c^4 C d^{10} - 7\,i\,a^6 b^2 c^4 C d^{10} - 6 a^5 b^3 c^4 C d^{10} + a^8 A c^3 d^{11} + a^6 A b^2 c^3 d^{11} + 3\,i\,a^8 B c^3 d^{11} + 4 a^7 b B c^3 d^{11} + 3\,i\,a^6 b^2 B c^3 d^{11} +$$
$$4 a^5 b^3 B c^3 d^{11} - a^8 c^3 C d^{11} - a^6 b^2 c^3 C d^{11} - i\,a^8 A c^2 d^{12} - a^7 A b c^2 d^{12} - i\,a^7 b B c^2 d^{12} - a^6 b^2 B c^2 d^{12} + i\,a^8 c^2 C d^{12} + a^7 b c^2 C d^{12}\Big)$$
$$(e + f x)\,\mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^3\Big) \Big/$$
$$\Big(a^2 (a - i\,b)^2 (a + i\,b) c^2 (-i\,c - d)^3 (c - i\,d)^3 (c + i\,d)^5 (-b c + a d)^4 f (a + b\,\mathrm{Tan}[e + f x]) (c + d\,\mathrm{Tan}[e + f x])^3\Big) -$$
$$\Big(i\left(-A b^4 + a b^3 B - a^2 b^2 C\right) \mathrm{ArcTan}[\mathrm{Tan}[e + f x]]\,\mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^3\Big) \Big/$$
$$\Big(\left(a^2 + b^2\right) (-b c + a d)^3 f (a + b\,\mathrm{Tan}[e + f x]) (c + d\,\mathrm{Tan}[e + f x])^3\Big) +$$
$$\frac{1}{(b c - a d)^3 \left(c^2 + d^2\right)^3 f (a + b\,\mathrm{Tan}[e + f x]) (c + d\,\mathrm{Tan}[e + f x])^3}$$
$$i\,\Big(b^2 c^6 C - 3 b^2 B c^5 d + 6 A b^2 c^4 d^2 + 3 a b B c^4 d^2 - 3 b^2 c^4 C d^2 - 8 a A b c^3 d^3 - a^2 B c^3 d^3 + b^2 B c^3 d^3 +$$
$$8 a b c^3 C d^3 + 3 a^2 A c^2 d^4 + 3 A b^2 c^2 d^4 - 6 a b B c^2 d^4 - 3 a^2 c^2 C d^4 + 3 a^2 B c d^5 - a^2 A d^6 + A b^2 d^6 - a b B d^6 + a^2 C d^6\Big)$$
$$\mathrm{ArcTan}[\mathrm{Tan}[e + f x]]\,\mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^3 +$$
$$\Big(\left(-A b^4 + a b^3 B - a^2 b^2 C\right) \mathrm{Log}\left[(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])^2\right] \mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^3\Big) \Big/$$
$$\Big(2 \left(a^2 + b^2\right) (-b c + a d)^3 f (a + b\,\mathrm{Tan}[e + f x]) (c + d\,\mathrm{Tan}[e + f x])^3\Big) -$$
$$\frac{1}{2 (b c - a d)^3 \left(c^2 + d^2\right)^3 f (a + b\,\mathrm{Tan}[e + f x]) (c + d\,\mathrm{Tan}[e + f x])^3}$$
$$\Big(b^2 c^6 C - 3 b^2 B c^5 d + 6 A b^2 c^4 d^2 + 3 a b B c^4 d^2 - 3 b^2 c^4 C d^2 - 8 a A b c^3 d^3 - a^2 B c^3 d^3 + b^2 B c^3 d^3 +$$
$$8 a b c^3 C d^3 + 3 a^2 A c^2 d^4 + 3 A b^2 c^2 d^4 - 6 a b B c^2 d^4 - 3 a^2 c^2 C d^4 + 3 a^2 B c d^5 - a^2 A d^6 + A b^2 d^6 - a b B d^6 + a^2 C d^6\Big)$$
$$\mathrm{Log}\left[(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^2\right] \mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])^3 +$$
$$\Big(\mathrm{Sec}[e + f x]^4\,(a\,\mathrm{Cos}[e + f x] + b\,\mathrm{Sin}[e + f x])\,(c\,\mathrm{Cos}[e + f x] + d\,\mathrm{Sin}[e + f x])$$
$$\Big(-a^2 b c^6 C d^2 - b^3 c^6 C d^2 + 2 a^2 b B c^5 d^3 + 2 b^3 B c^5 d^3 - 3 a^2 A b c^4 d^4 - 3 A b^3 c^4 d^4 - a^3 B c^4 d^4 - a b^2 B c^4 d^4 + 2 a^3 A c^3 d^5 + 2 a A b^2 c^3 d^5 +$$
$$2 a^2 b B c^3 d^5 + 2 b^3 B c^3 d^5 - 2 a^3 c^3 C d^5 - 2 a b^2 c^3 C d^5 - 4 a^2 A b c^2 d^6 - 4 A b^3 c^2 d^6 + a^2 b c^2 C d^6 + b^3 c^2 C d^6 + 2 a^3 A c d^7 + 2 a A b^2 c d^7 -$$
$$2 a^3 c C d^7 - 2 a b^2 c C d^7 - a^2 A b d^8 - A b^3 d^8 + a^3 B d^8 + a b^2 B d^8 + a A b^2 c^8 (e + f x) + b^3 B c^8 (e + f x) - a b^2 c^8 C (e + f x) - 2 a^2 A b c^7 d (e + f x) -$$

$3 A b^3 c^7 d (e + f x) + a b^2 B c^7 d (e + f x) + 2 a^2 b c^7 C d (e + f x) + 3 b^3 c^7 C d (e + f x) + a^3 A c^6 d^2 (e + f x) + 4 a A b^2 c^6 d^2 (e + f x) -$

$5 a^2 b B c^6 d^2 (e + f x) - 2 b^3 B c^6 d^2 (e + f x) - a^3 c^6 C d^2 (e + f x) - 4 a b^2 c^6 C d^2 (e + f x) + a^2 A b c^5 d^3 (e + f x) - 2 A b^3 c^5 d^3 (e + f x) +$

$3 a^3 B c^5 d^3 (e + f x) + 6 a b^2 B c^5 d^3 (e + f x) - a^2 b c^5 C d^3 (e + f x) + 2 b^3 c^5 C d^3 (e + f x) - 2 a^3 A c^4 d^4 (e + f x) + a A b^2 c^4 d^4 (e + f x) -$

$6 a^2 b B c^4 d^4 (e + f x) - 3 b^3 B c^4 d^4 (e + f x) + 2 a^3 c^4 C d^4 (e + f x) - a b^2 c^4 C d^4 (e + f x) + 4 a^2 A b c^3 d^5 (e + f x) + A b^3 c^3 d^5 (e + f x) +$

$2 a^3 B c^3 d^5 (e + f x) + 5 a b^2 B c^3 d^5 (e + f x) - 4 a^2 b c^3 C d^5 (e + f x) - b^3 c^3 C d^5 (e + f x) - 3 a^3 A c^2 d^6 (e + f x) - 2 a A b^2 c^2 d^6 (e + f x) -$

$a^2 b B c^2 d^6 (e + f x) + 3 a^3 c^2 C d^6 (e + f x) + 2 a b^2 c^2 C d^6 (e + f x) + a^2 A b c d^7 (e + f x) - a^3 B c d^7 (e + f x) - a^2 b c C d^7 (e + f x) +$

$2 a^2 b c^6 C d^2 \mathrm{Cos}[2 (e + f x)] + 2 b^3 c^6 C d^2 \mathrm{Cos}[2 (e + f x)] - 3 a^2 b B c^5 d^3 \mathrm{Cos}[2 (e + f x)] - 3 b^3 B c^5 d^3 \mathrm{Cos}[2 (e + f x)] -$

$a^3 c^5 C d^3 \mathrm{Cos}[2 (e + f x)] - a b^2 c^5 C d^3 \mathrm{Cos}[2 (e + f x)] + 4 a^2 A b c^4 d^4 \mathrm{Cos}[2 (e + f x)] + 4 A b^3 c^4 d^4 \mathrm{Cos}[2 (e + f x)] +$

$2 a^3 B c^4 d^4 \mathrm{Cos}[2 (e + f x)] + 2 a b^2 B c^4 d^4 \mathrm{Cos}[2 (e + f x)] + a^2 b c^4 C d^4 \mathrm{Cos}[2 (e + f x)] + b^3 c^4 C d^4 \mathrm{Cos}[2 (e + f x)] -$

$3 a^3 A c^3 d^5 \mathrm{Cos}[2 (e + f x)] - 3 a A b^2 c^3 d^5 \mathrm{Cos}[2 (e + f x)] - 3 a^2 b B c^3 d^5 \mathrm{Cos}[2 (e + f x)] - 3 b^3 B c^3 d^5 \mathrm{Cos}[2 (e + f x)] +$

$a^3 c^3 C d^5 \mathrm{Cos}[2 (e + f x)] + a b^2 c^3 C d^5 \mathrm{Cos}[2 (e + f x)] + 5 a^2 A b c^2 d^6 \mathrm{Cos}[2 (e + f x)] + 5 A b^3 c^2 d^6 \mathrm{Cos}[2 (e + f x)] +$

$a^3 B c^2 d^6 \mathrm{Cos}[2 (e + f x)] + a b^2 B c^2 d^6 \mathrm{Cos}[2 (e + f x)] - a^2 b c^2 C d^6 \mathrm{Cos}[2 (e + f x)] - b^3 c^2 C d^6 \mathrm{Cos}[2 (e + f x)] -$

$3 a^3 A c d^7 \mathrm{Cos}[2 (e + f x)] - 3 a A b^2 c d^7 \mathrm{Cos}[2 (e + f x)] + 2 a^3 c C d^7 \mathrm{Cos}[2 (e + f x)] + 2 a b^2 c C d^7 \mathrm{Cos}[2 (e + f x)] +$

$a^2 A b d^8 \mathrm{Cos}[2 (e + f x)] + A b^3 d^8 \mathrm{Cos}[2 (e + f x)] - a^3 B d^8 \mathrm{Cos}[2 (e + f x)] - a b^2 B d^8 \mathrm{Cos}[2 (e + f x)] + a A b^2 c^8 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$b^3 B c^8 (e + f x) \mathrm{Cos}[2 (e + f x)] - a b^2 c^8 C (e + f x) \mathrm{Cos}[2 (e + f x)] - 2 a^2 A b c^7 d (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$3 A b^3 c^7 d (e + f x) \mathrm{Cos}[2 (e + f x)] + a b^2 B c^7 d (e + f x) \mathrm{Cos}[2 (e + f x)] + 2 a^2 b c^7 C d (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$3 b^3 c^7 C d (e + f x) \mathrm{Cos}[2 (e + f x)] + a^3 A c^6 d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] + 2 a A b^2 c^6 d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$5 a^2 b B c^6 d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] - 4 b^3 B c^6 d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] - a^3 c^6 C d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$2 a b^2 c^6 C d^2 (e + f x) \mathrm{Cos}[2 (e + f x)] + 5 a^2 A b c^5 d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] + 4 A b^3 c^5 d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$3 a^3 B c^5 d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] + 4 a b^2 B c^5 d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] - 5 a^2 b c^5 C d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$4 b^3 c^5 C d^3 (e + f x) \mathrm{Cos}[2 (e + f x)] - 4 a^3 A c^4 d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] - 5 a A b^2 c^4 d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$4 a^2 b B c^4 d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] + 3 b^3 B c^4 d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] + 4 a^3 c^4 C d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$5 a b^2 c^4 C d^4 (e + f x) \mathrm{Cos}[2 (e + f x)] - 2 a^2 A b c^3 d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] - A b^3 c^3 d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$4 a^3 B c^3 d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] - 5 a b^2 B c^3 d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] + 2 a^2 b c^3 C d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$b^3 c^3 C d^5 (e + f x) \mathrm{Cos}[2 (e + f x)] + 3 a^3 A c^2 d^6 (e + f x) \mathrm{Cos}[2 (e + f x)] + 2 a A b^2 c^2 d^6 (e + f x) \mathrm{Cos}[2 (e + f x)] +$

$a^2 b B c^2 d^6 (e + f x) \mathrm{Cos}[2 (e + f x)] - 3 a^3 c^2 C d^6 (e + f x) \mathrm{Cos}[2 (e + f x)] - 2 a b^2 c^2 C d^6 (e + f x) \mathrm{Cos}[2 (e + f x)] -$

$a^2 A b c d^7 (e + f x) \mathrm{Cos}[2 (e + f x)] + a^3 B c d^7 (e + f x) \mathrm{Cos}[2 (e + f x)] + a^2 b c C d^7 (e + f x) \mathrm{Cos}[2 (e + f x)] - 2 a^2 b c^7 C d \mathrm{Sin}[2 (e + f x)] -$

$2 b^3 c^7 C d \mathrm{Sin}[2 (e + f x)] + 3 a^2 b B c^6 d^2 \mathrm{Sin}[2 (e + f x)] + 3 b^3 B c^6 d^2 \mathrm{Sin}[2 (e + f x)] + a^3 c^6 C d^2 \mathrm{Sin}[2 (e + f x)] +$

$a b^2 c^6 C d^2 \mathrm{Sin}[2 (e + f x)] - 4 a^2 A b c^5 d^3 \mathrm{Sin}[2 (e + f x)] - 4 A b^3 c^5 d^3 \mathrm{Sin}[2 (e + f x)] - 2 a^3 B c^5 d^3 \mathrm{Sin}[2 (e + f x)] -$

$2 a b^2 B c^5 d^3 \mathrm{Sin}[2 (e + f x)] - a^2 b c^5 C d^3 \mathrm{Sin}[2 (e + f x)] - b^3 c^5 C d^3 \mathrm{Sin}[2 (e + f x)] + 3 a^3 A c^4 d^4 \mathrm{Sin}[2 (e + f x)] +$

$3 a A b^2 c^4 d^4 \mathrm{Sin}[2 (e + f x)] + 3 a^2 b B c^4 d^4 \mathrm{Sin}[2 (e + f x)] + 3 b^3 B c^4 d^4 \mathrm{Sin}[2 (e + f x)] - a^3 c^4 C d^4 \mathrm{Sin}[2 (e + f x)] -$

$a b^2 c^4 C d^4 \mathrm{Sin}[2 (e + f x)] - 5 a^2 A b c^3 d^5 \mathrm{Sin}[2 (e + f x)] - 5 A b^3 c^3 d^5 \mathrm{Sin}[2 (e + f x)] - a^3 B c^3 d^5 \mathrm{Sin}[2 (e + f x)] -$

$a b^2 B c^3 d^5 \mathrm{Sin}[2 (e + f x)] + a^2 b c^3 C d^5 \mathrm{Sin}[2 (e + f x)] + b^3 c^3 C d^5 \mathrm{Sin}[2 (e + f x)] + 3 a^3 A c^2 d^6 \mathrm{Sin}[2 (e + f x)] +$

$3 a A b^2 c^2 d^6 \mathrm{Sin}[2 (e + f x)] - 2 a^3 c^2 C d^6 \mathrm{Sin}[2 (e + f x)] - 2 a b^2 c^2 C d^6 \mathrm{Sin}[2 (e + f x)] - a^2 A b c d^7 \mathrm{Sin}[2 (e + f x)] -$

$A b^3 c d^7 \mathrm{Sin}[2 (e + f x)] + a^3 B c d^7 \mathrm{Sin}[2 (e + f x)] + a b^2 B c d^7 \mathrm{Sin}[2 (e + f x)] + 2 a A b^2 c^7 d (e + f x) \mathrm{Sin}[2 (e + f x)] +$

$2 b^3 B c^7 d (e + f x) \mathrm{Sin}[2 (e + f x)] - 2 a b^2 c^7 C d (e + f x) \mathrm{Sin}[2 (e + f x)] - 4 a^2 A b c^6 d^2 (e + f x) \mathrm{Sin}[2 (e + f x)] -$

$6 A b^3 c^6 d^2 (e + f x) \mathrm{Sin}[2 (e + f x)] + 2 a b^2 B c^6 d^2 (e + f x) \mathrm{Sin}[2 (e + f x)] + 4 a^2 b c^6 C d^2 (e + f x) \mathrm{Sin}[2 (e + f x)] +$

$6 b^3 c^6 C d^2 (e + f x) \mathrm{Sin}[2 (e + f x)] + 2 a^3 A c^5 d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] + 6 a A b^2 c^5 d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] -$

$10 a^2 b B c^5 d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] - 6 b^3 B c^5 d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] - 2 a^3 c^5 C d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] -$

$6 a b^2 c^5 C d^3 (e + f x) \mathrm{Sin}[2 (e + f x)] + 6 a^2 A b c^4 d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] + 2 A b^3 c^4 d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] +$

$6 a^3 B c^4 d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] + 10 a b^2 B c^4 d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] - 6 a^2 b c^4 C d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] -$

$2 b^3 c^4 C d^4 (e + f x) \mathrm{Sin}[2 (e + f x)] - 6 a^3 A c^3 d^5 (e + f x) \mathrm{Sin}[2 (e + f x)] - 4 a A b^2 c^3 d^5 (e + f x) \mathrm{Sin}[2 (e + f x)] -$

$2 a^2 b B c^3 d^5 (e + f x) \mathrm{Sin}[2 (e + f x)] + 6 a^3 c^3 C d^5 (e + f x) \mathrm{Sin}[2 (e + f x)] + 4 a b^2 c^3 C d^5 (e + f x) \mathrm{Sin}[2 (e + f x)] +$

$2 a^2 A b c^2 d^6 (e + f x) \mathrm{Sin}[2 (e + f x)] - 2 a^3 B c^2 d^6 (e + f x) \mathrm{Sin}[2 (e + f x)] - 2 a^2 b c^2 C d^6 (e + f x) \mathrm{Sin}[2 (e + f x)]\Big)\Big) \Big/$

Problem 89: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2}{(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])^3}\,dx$$

Optimal (type 3, 861 leaves, 6 steps):

$$-\frac{1}{\left(a^2+b^2\right)^2\left(c^2+d^2\right)^3}\left(b^2\left(A c^3-c^3 C+3 B c^2 d-3 A c d^2+3 c C d^2-B d^3\right)+a^2\left(c^3 C-3 B c^2 d-3 c C d^2+B d^3-A\left(c^3-3 c d^2\right)\right)+2 a b\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)\right) x+\frac{1}{\left(a^2+b^2\right)^2 (b c-a d)^4 f}$$
$$b^2\left(4 a^3 b B d-3 a^4 C d+b^4 (B c-3 A d)+2 a b^3 (A c-c C+B d)-a^2 b^2 (B c+(5 A+C) d)\right) \mathrm{Log}[a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x]]+$$
$$\frac{1}{(b c-a d)^4\left(c^2+d^2\right)^3 f} d\left(b^2\left(3 c^6 C-6 B c^5 d+c^4 (10 A-C) d^2-3 B c^3 d^3+9 A c^2 d^4-B c d^5+3 A d^6\right)+\right.$$
$$\left.a^2 d^3\left((A-C) d\left(3 c^2-d^2\right)-B\left(c^3-3 c d^2\right)\right)-2 a b d^2\left(c (A-C) d\left(5 c^2+d^2\right)-B\left(2 c^4-3 c^2 d^2-d^4\right)\right)\right) \mathrm{Log}[c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]]-$$
$$\frac{d\left(b^2 c (c C-B d)-2 a b B\left(c^2+d^2\right)+a^2\left(3 c^2 C-B c d+2 C d^2\right)+A\left(a^2 d^2+b^2\left(2 c^2+3 d^2\right)\right)\right)}{2\left(a^2+b^2\right)(b c-a d)^2\left(c^2+d^2\right) f\,(c+d\,\mathrm{Tan}[e+f x])^2}-$$
$$\frac{A b^2-a (b B-a C)}{\left(a^2+b^2\right)(b c-a d) f\,(a+b\,\mathrm{Tan}[e+f x])\,(c+d\,\mathrm{Tan}[e+f x])^2}-$$
$$\left(d\left(b^3 c\left(2 c^3 C-3 B c^2 d-B d^3\right)+a^2 b\left(3 c^4 C-3 B c^3 d+2 c^2 C d^2-B c d^3+C d^4\right)+a^3 d^2\left(2 c C d+B\left(c^2-d^2\right)\right)+a b^2\left(2 c C d^3-B\left(c^4+c^2 d^2+2 d^4\right)\right)-\right.\right.$$
$$\left.\left.A\left(2 a^3 c d^3+2 a b^2 c d^3-2 a^2 b d^2\left(2 c^2+d^2\right)-b^3\left(c^4+6 c^2 d^2+3 d^4\right)\right)\right)\right)\Big/\left(\left(a^2+b^2\right)(b c-a d)^3\left(c^2+d^2\right)^2 f\,(c+d\,\mathrm{Tan}[e+f x])\right)$$

Result (type 3, 7871 leaves):

$$\frac{\left(-c^2 C d^3+B c d^4-A d^5\right) \mathrm{Sec}[e+f x]^5\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])}{2\,(c-i d)^2\,(c+i d)^2\,(b c-a d)^2 f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])^3}+$$
$$\left(\left(a^2 A c^3-A b^2 c^3+2 a b B c^3-a^2 c^3 C+b^2 c^3 C-6 a A b c^2 d+3 a^2 B c^2 d-3 b^2 B c^2 d+6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2-6 a b B c d^2+3 a^2 c C d^2-\right.\right.$$
$$\left.\left.3 b^2 c C d^2+2 a A b d^3-a^2 B d^3+b^2 B d^3-2 a b C d^3\right)(e+f x)\,\mathrm{Sec}[e+f x]^5\,(a\,\mathrm{Cos}[e+f x]+b\,\mathrm{Sin}[e+f x])^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3\right)\Big/$$
$$\left((a-i b)^2\,(a+i b)^2\,(c-i d)^3\,(c+i d)^3 f\,(a+b\,\mathrm{Tan}[e+f x])^2\,(c+d\,\mathrm{Tan}[e+f x])^3\right)+$$
$$\left(\left(2 a^6 A b^7 c^{16}-2 i a^5 A b^8 c^{16}+2 a^4 A b^9 c^{16}-2 i a^3 A b^{10} c^{16}-a^7 b^6 B c^{16}+i a^6 b^7 B c^{16}+a^3 b^{10} B c^{16}-i a^2 b^{11} B c^{16}-2 a^6 b^7 c^{16} C+2 i a^5 b^8 c^{16} C-\right.\right.$$
$$2 a^4 b^9 c^{16} C+2 i a^3 b^{10} c^{16} C-9 a^7 A b^6 c^{15} d+7 i a^6 A b^7 c^{15} d-14 a^5 A b^8 c^{15} d+10 i a^4 A b^9 c^{15} d-5 a^3 A b^{10} c^{15} d+3 i a^2 A b^{11} c^{15} d+$$
$$6 a^8 b^5 B c^{15} d-5 i a^7 b^6 B c^{15} d+7 a^6 b^7 B c^{15} d-6 i a^5 b^8 B c^{15} d-i a^3 b^{10} B c^{15} d-a^2 b^{11} B c^{15} d+9 a^7 b^6 c^{15} C d-7 i a^6 b^7 c^{15} C d+$$
$$14 a^5 b^8 c^{15} C d-10 i a^4 b^9 c^{15} C d+5 a^3 b^{10} c^{15} C d-3 i a^2 b^{11} c^{15} C d+12 a^8 A b^5 c^{14} d^2-3 i a^7 A b^6 c^{14} d^2+37 a^6 A b^7 c^{14} d^2-16 i a^5 A b^8 c^{14} d^2+$$
$$28 a^4 A b^9 c^{14} d^2-13 i a^3 A b^{10} c^{14} d^2+3 a^2 A b^{11} c^{14} d^2-15 a^9 b^4 B c^{14} d^2+9 i a^8 b^5 B c^{14} d^2-41 a^7 b^6 B c^{14} d^2+29 i a^6 b^7 B c^{14} d^2-$$
$$27 a^5 b^8 B c^{14} d^2+21 i a^4 b^9 B c^{14} d^2-a^3 b^{10} B c^{14} d^2+i a^2 b^{11} B c^{14} d^2-12 a^8 b^5 c^{14} C d^2+3 i a^7 b^6 c^{14} C d^2-37 a^6 b^7 c^{14} C d^2+16 i a^5 b^8 c^{14} C d^2-$$
$$28 a^4 b^9 c^{14} C d^2+13 i a^3 b^{10} c^{14} C d^2-3 a^2 b^{11} c^{14} C d^2+5 a^9 A b^4 c^{13} d^3-17 i a^8 A b^5 c^{13} d^3-35 a^7 A b^6 c^{13} d^3-5 i a^6 A b^7 c^{13} d^3-61 a^5 A b^8 c^{13} d^3+$$
$$17 i a^4 A b^9 c^{13} d^3-21 a^3 A b^{10} c^{13} d^3+5 i a^2 A b^{11} c^{13} d^3+20 a^{10} b^3 B c^{13} d^3-5 i a^9 b^4 B c^{13} d^3+99 a^8 b^5 B c^{13} d^3-49 i a^7 b^6 B c^{13} d^3+$$
$$115 a^6 b^7 B c^{13} d^3-59 i a^5 b^8 B c^{13} d^3+37 a^4 b^9 B c^{13} d^3-15 i a^3 b^{10} B c^{13} d^3+a^2 b^{11} B c^{13} d^3-5 a^9 b^4 c^{13} C d^3+17 i a^8 b^5 c^{13} C d^3+$$
$$35 a^7 b^6 c^{13} C d^3+5 i a^6 b^7 c^{13} C d^3+61 a^5 b^8 c^{13} C d^3-17 i a^4 b^9 c^{13} C d^3+21 a^3 b^{10} c^{13} C d^3-5 i a^2 b^{11} c^{13} C d^3-30 a^{10} A b^3 c^{12} d^4+$$

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25 ⅈ a^9 A b^4 c^12 d^4 - 35 a^8 A b^5 c^12 d^4 + 53 ⅈ a^7 A b^6 c^12 d^4 + 43 a^6 A b^7 c^12 d^4 + 13 ⅈ a^5 A b^8 c^12 d^4 + 53 a^4 A b^9 c^12 d^4 - 15 ⅈ a^3 A b^10 c^12 d^4 +
5 a^2 A b^11 c^12 d^4 - 15 a^11 b^2 B c^12 d^4 - 5 ⅈ a^10 b^3 B c^12 d^4 - 125 a^9 b^4 B c^12 d^4 + 21 ⅈ a^8 b^5 B c^12 d^4 - 244 a^7 b^6 B c^12 d^4 + 80 ⅈ a^6 b^7 B c^12 d^4 -
155 a^5 b^8 B c^12 d^4 + 59 ⅈ a^4 b^9 B c^12 d^4 - 21 a^3 b^10 B c^12 d^4 + 5 ⅈ a^2 b^11 B c^12 d^4 + 30 a^10 b^3 c^12 C d^4 - 25 ⅈ a^9 b^4 c^12 C d^4 + 35 a^8 b^5 c^12 C d^4 -
53 ⅈ a^7 b^6 c^12 C d^4 - 43 a^6 b^7 c^12 C d^4 - 13 ⅈ a^5 b^8 c^12 C d^4 - 53 a^4 b^9 c^12 C d^4 + 15 ⅈ a^3 b^10 c^12 C d^4 - 5 a^2 b^11 c^12 C d^4 + 33 a^11 A b^2 c^11 d^5 -
3 ⅈ a^10 A b^3 c^11 d^5 + 133 a^9 A b^4 c^11 d^5 - 73 ⅈ a^8 A b^5 c^11 d^5 + 86 a^7 A b^6 c^11 d^5 - 76 ⅈ a^6 A b^7 c^11 d^5 - 35 a^5 A b^8 c^11 d^5 - 5 ⅈ a^4 A b^9 c^11 d^5 -
21 a^3 A b^10 c^11 d^5 + ⅈ a^2 A b^11 c^11 d^5 + 6 a^12 b B c^11 d^5 + 9 ⅈ a^11 b^2 B c^11 d^5 + 85 a^10 b^3 B c^11 d^5 + 35 ⅈ a^9 b^4 B c^11 d^5 + 309 a^8 b^5 B c^11 d^5 -
44 ⅈ a^7 b^6 B c^11 d^5 + 332 a^6 b^7 B c^11 d^5 - 97 ⅈ a^5 b^8 B c^11 d^5 + 107 a^4 b^9 B c^11 d^5 - 27 ⅈ a^3 b^10 B c^11 d^5 + 5 a^2 b^11 B c^11 d^5 - 33 a^11 b^2 c^11 C d^5 +
3 ⅈ a^10 b^3 c^11 C d^5 - 133 a^9 b^4 c^11 C d^5 + 73 ⅈ a^8 b^5 c^11 C d^5 - 86 a^7 b^6 c^11 C d^5 + 76 ⅈ a^6 b^7 c^11 C d^5 + 35 a^5 b^8 c^11 C d^5 + 5 ⅈ a^4 b^9 c^11 C d^5 +
21 a^3 b^10 c^11 C d^5 - ⅈ a^2 b^11 c^11 C d^5 - 16 a^12 A b c^10 d^6 - 17 ⅈ a^11 A b^2 c^10 d^6 - 161 a^10 A b^3 c^10 d^6 + 25 ⅈ a^9 A b^4 c^10 d^6 - 271 a^8 A b^5 c^10 d^6 +
112 ⅈ a^7 A b^6 c^10 d^6 - 112 a^6 A b^7 c^10 d^6 + 71 ⅈ a^5 A b^8 c^10 d^6 + 15 a^4 A b^9 c^10 d^6 + ⅈ a^3 A b^10 c^10 d^6 + a^2 A b^11 c^10 d^6 - a^13 B c^10 d^6 - 5 ⅈ a^12 b B c^10 d^6 -
27 a^11 b^2 B c^10 d^6 - 49 ⅈ a^10 b^3 B c^10 d^6 - 230 a^9 b^4 B c^10 d^6 - 44 ⅈ a^8 b^5 B c^10 d^6 - 428 a^7 b^6 B c^10 d^6 + 52 ⅈ a^6 b^7 B c^10 d^6 - 259 a^5 b^8 B c^10 d^6 +
55 ⅈ a^4 b^9 B c^10 d^6 - 35 a^3 b^10 B c^10 d^6 + 3 ⅈ a^2 b^11 B c^10 d^6 + 16 a^12 b c^10 C d^6 + 17 ⅈ a^11 b^2 c^10 C d^6 + 161 a^10 b^3 c^10 C d^6 - 25 ⅈ a^9 b^4 c^10 C d^6 +
271 a^8 b^5 c^10 C d^6 - 112 ⅈ a^7 b^6 c^10 C d^6 + 112 a^6 b^7 c^10 C d^6 - 71 ⅈ a^5 b^8 c^10 C d^6 - 15 a^4 b^9 c^10 C d^6 - ⅈ a^3 b^10 c^10 C d^6 - a^2 b^11 c^10 C d^6 + 3 a^13 A c^9 d^7 +
13 ⅈ a^12 A b c^9 d^7 + 103 a^11 A b^2 c^9 d^7 + 41 ⅈ a^10 A b^3 c^9 d^7 + 352 a^9 A b^4 c^9 d^7 - 56 ⅈ a^8 A b^5 c^9 d^7 + 328 a^7 A b^6 c^9 d^7 - 104 ⅈ a^6 A b^7 c^9 d^7 +
77 a^5 A b^8 c^9 d^7 - 21 ⅈ a^4 A b^9 c^9 d^7 + a^3 A b^10 c^9 d^7 - ⅈ a^2 A b^11 c^9 d^7 + ⅈ a^13 B c^9 d^7 + a^12 b B c^9 d^7 + 21 ⅈ a^11 b^2 B c^9 d^7 + 77 a^10 b^3 B c^9 d^7 +
104 ⅈ a^9 b^4 B c^9 d^7 + 328 a^8 b^5 B c^9 d^7 + 56 ⅈ a^7 b^6 B c^9 d^7 + 352 a^6 b^7 B c^9 d^7 - 41 ⅈ a^5 b^8 B c^9 d^7 + 103 a^4 b^9 B c^9 d^7 - 13 ⅈ a^3 b^10 B c^9 d^7 +
3 a^2 b^11 B c^9 d^7 - 3 a^13 c^9 C d^7 - 13 ⅈ a^12 b c^9 C d^7 - 103 a^11 b^2 c^9 C d^7 - 41 ⅈ a^10 b^3 c^9 C d^7 - 352 a^9 b^4 c^9 C d^7 + 56 ⅈ a^8 b^5 c^9 C d^7 - 328 a^7 b^6 c^9 C d^7 +
104 ⅈ a^6 b^7 c^9 C d^7 - 77 a^5 b^8 c^9 C d^7 + 21 ⅈ a^4 b^9 c^9 C d^7 - a^3 b^10 c^9 C d^7 + ⅈ a^2 b^11 c^9 C d^7 - 3 ⅈ a^13 A c^8 d^8 - 35 a^12 A b c^8 d^8 - 55 ⅈ a^11 A b^2 c^8 d^8 -
259 a^10 A b^3 c^8 d^8 - 52 ⅈ a^9 A b^4 c^8 d^8 - 428 a^8 A b^5 c^8 d^8 + 44 ⅈ a^7 A b^6 c^8 d^8 - 230 a^6 A b^7 c^8 d^8 + 49 ⅈ a^5 A b^8 c^8 d^8 - 27 a^4 A b^9 c^8 d^8 +
5 ⅈ a^3 A b^10 c^8 d^8 - a^2 A b^11 c^8 d^8 + a^13 B c^8 d^8 - ⅈ a^12 b B c^8 d^8 + 15 a^11 b^2 B c^8 d^8 - 71 ⅈ a^10 b^3 B c^8 d^8 - 112 a^9 b^4 B c^8 d^8 - 112 ⅈ a^8 b^5 B c^8 d^8 -
271 a^7 b^6 B c^8 d^8 - 25 ⅈ a^6 b^7 B c^8 d^8 - 161 a^5 b^8 B c^8 d^8 + 17 ⅈ a^4 b^9 B c^8 d^8 - 16 a^3 b^10 B c^8 d^8 + 3 ⅈ a^13 c^8 C d^8 + 35 a^12 b c^8 C d^8 + 55 ⅈ a^11 b^2 c^8 C d^8 +
259 a^10 b^3 c^8 C d^8 + 52 ⅈ a^9 b^4 c^8 C d^8 + 428 a^8 b^5 c^8 C d^8 - 44 ⅈ a^7 b^6 c^8 C d^8 + 230 a^6 b^7 c^8 C d^8 - 49 ⅈ a^5 b^8 c^8 C d^8 + 27 a^4 b^9 c^8 C d^8 -
5 ⅈ a^3 b^10 c^8 C d^8 + a^2 b^11 c^8 C d^8 + 5 a^13 A c^7 d^9 + 27 ⅈ a^12 A b c^7 d^9 + 107 a^11 A b^2 c^7 d^9 + 97 ⅈ a^10 A b^3 c^7 d^9 + 332 a^9 A b^4 c^7 d^9 + 44 ⅈ a^8 A b^5 c^7 d^9 +
309 a^7 A b^6 c^7 d^9 - 35 ⅈ a^6 A b^7 c^7 d^9 + 85 a^5 A b^8 c^7 d^9 - 9 ⅈ a^4 A b^9 c^7 d^9 + 6 a^3 A b^10 c^7 d^9 - ⅈ a^13 B c^7 d^9 - 21 a^12 b B c^7 d^9 + 5 ⅈ a^11 b^2 B c^7 d^9 -
35 a^10 b^3 B c^7 d^9 + 76 ⅈ a^9 b^4 B c^7 d^9 + 86 a^8 b^5 B c^7 d^9 + 73 ⅈ a^7 b^6 B c^7 d^9 + 133 a^6 b^7 B c^7 d^9 + 3 ⅈ a^5 b^8 B c^7 d^9 + 33 a^4 b^9 B c^7 d^9 - 5 a^13 c^7 C d^9 -
27 ⅈ a^12 b c^7 C d^9 - 107 a^11 b^2 c^7 C d^9 - 97 ⅈ a^10 b^3 c^7 C d^9 - 332 a^9 b^4 c^7 C d^9 - 44 ⅈ a^8 b^5 c^7 C d^9 - 309 a^7 b^6 c^7 C d^9 + 35 ⅈ a^6 b^7 c^7 C d^9 -
85 a^5 b^8 c^7 C d^9 + 9 ⅈ a^4 b^9 c^7 C d^9 - 6 a^3 b^10 c^7 C d^9 - 5 ⅈ a^13 A c^6 d^10 - 21 a^12 A b c^6 d^10 - 59 ⅈ a^11 A b^2 c^6 d^10 - 155 a^10 A b^3 c^6 d^10 -
80 ⅈ a^9 A b^4 c^6 d^10 - 244 a^8 A b^5 c^6 d^10 - 21 ⅈ a^7 A b^6 c^6 d^10 - 125 a^6 A b^7 c^6 d^10 + 5 ⅈ a^5 A b^8 c^6 d^10 - 15 a^4 A b^9 c^6 d^10 + 5 a^13 B c^6 d^10 +
15 ⅈ a^12 b B c^6 d^10 + 53 a^11 b^2 B c^6 d^10 - 13 ⅈ a^10 b^3 B c^6 d^10 + 43 a^9 b^4 B c^6 d^10 - 53 ⅈ a^8 b^5 B c^6 d^10 - 35 a^7 b^6 B c^6 d^10 - 25 ⅈ a^6 b^7 B c^6 d^10 -
30 a^5 b^8 B c^6 d^10 + 5 ⅈ a^13 c^6 C d^10 + 21 a^12 b c^6 C d^10 + 59 ⅈ a^11 b^2 c^6 C d^10 + 155 a^10 b^3 c^6 C d^10 + 80 ⅈ a^9 b^4 c^6 C d^10 + 244 a^8 b^5 c^6 C d^10 +
21 ⅈ a^7 b^6 c^6 C d^10 + 125 a^6 b^7 c^6 C d^10 - 5 ⅈ a^5 b^8 c^6 C d^10 + 15 a^4 b^9 c^6 C d^10 + a^13 A c^5 d^11 + 15 ⅈ a^12 A b c^5 d^11 + 37 a^11 A b^2 c^5 d^11 +
59 ⅈ a^10 A b^3 c^5 d^11 + 115 a^9 A b^4 c^5 d^11 + 49 ⅈ a^8 A b^5 c^5 d^11 + 99 a^7 A b^6 c^5 d^11 + 5 ⅈ a^6 A b^7 c^5 d^11 + 20 a^5 A b^8 c^5 d^11 - 5 ⅈ a^13 B c^5 d^11 -
21 a^12 b B c^5 d^11 - 17 ⅈ a^11 b^2 B c^5 d^11 - 61 a^10 b^3 B c^5 d^11 + 5 ⅈ a^9 b^4 B c^5 d^11 - 35 a^8 b^5 B c^5 d^11 + 17 ⅈ a^7 b^6 B c^5 d^11 + 5 a^6 b^7 B c^5 d^11 -
a^13 c^5 C d^11 - 15 ⅈ a^12 b c^5 C d^11 - 37 a^11 b^2 c^5 C d^11 - 59 ⅈ a^10 b^3 c^5 C d^11 - 115 a^9 b^4 c^5 C d^11 - 49 ⅈ a^8 b^5 c^5 C d^11 - 99 a^7 b^6 c^5 C d^11 -
5 ⅈ a^6 b^7 c^5 C d^11 - 20 a^5 b^8 c^5 C d^11 - ⅈ a^13 A c^4 d^12 - a^12 A b c^4 d^12 - 21 ⅈ a^11 A b^2 c^4 d^12 - 27 a^10 A b^3 c^4 d^12 - 29 ⅈ a^9 A b^4 c^4 d^12 - 41 a^8 A b^5 c^4 d^12 -
9 ⅈ a^7 A b^6 c^4 d^12 - 15 a^6 A b^7 c^4 d^12 + 3 a^13 B c^4 d^12 + 13 ⅈ a^12 b B c^4 d^12 + 28 a^11 b^2 B c^4 d^12 + 16 ⅈ a^10 b^3 B c^4 d^12 + 37 a^9 b^4 B c^4 d^12 +
3 ⅈ a^8 b^5 B c^4 d^12 + 12 a^7 b^6 B c^4 d^12 + ⅈ a^13 c^4 C d^12 + a^12 b c^4 C d^12 + 21 ⅈ a^11 b^2 c^4 C d^12 + 27 a^10 b^3 c^4 C d^12 + 29 ⅈ a^9 b^4 c^4 C d^12 + 41 a^8 b^5 c^4 C d^12 +
9 ⅈ a^7 b^6 c^4 C d^12 + 15 a^6 b^7 c^4 C d^12 - a^13 A c^3 d^13 + ⅈ a^12 A b c^3 d^13 + 6 ⅈ a^10 A b^3 c^3 d^13 + 7 a^9 A b^4 c^3 d^13 + 5 ⅈ a^8 A b^5 c^3 d^13 + 6 a^7 A b^6 c^3 d^13 -
3 ⅈ a^13 B c^3 d^13 - 5 a^12 b B c^3 d^13 - 10 ⅈ a^11 b^2 B c^3 d^13 - 14 a^10 b^3 B c^3 d^13 - 7 ⅈ a^9 b^4 B c^3 d^13 - 9 a^8 b^5 B c^3 d^13 + a^13 c^3 C d^13 - ⅈ a^12 b c^3 C d^13 -
6 ⅈ a^10 b^3 c^3 C d^13 - 7 a^9 b^4 c^3 C d^13 - 5 ⅈ a^8 b^5 c^3 C d^13 - 6 a^7 b^6 c^3 C d^13 + ⅈ a^13 A c^2 d^14 + a^12 A b c^2 d^14 - ⅈ a^9 A b^4 c^2 d^14 - a^8 A b^5 c^2 d^14 +
2 ⅈ a^12 b B c^2 d^14 + 2 a^11 b^2 B c^2 d^14 + 2 ⅈ a^10 b^3 B c^2 d^14 + 2 a^9 b^4 B c^2 d^14 - ⅈ a^13 c^2 C d^14 - a^12 b c^2 C d^14 + ⅈ a^9 b^4 c^2 C d^14 + a^8 b^5 c^2 C d^14)
  (e + f x) Sec[e + f x]^5 (a Cos[e + f x] + b Sin[e + f x])^2 (c Cos[e + f x] + d Sin[e + f x])^3) /
(a^2 (a - ⅈ b)^4 (a + ⅈ b)^2 (-ⅈ a + b) c^2 (c - ⅈ d)^6 (c + ⅈ d)^5 (-b c + a d)^6 f (a + b Tan[e + f x])^2 (c + d Tan[e + f x])^3) -
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$$\Big(\mathbb{i}\,\big(2\,a\,A\,b^5\,c-a^2\,b^4\,B\,c+b^6\,B\,c-2\,a\,b^5\,c\,C-5\,a^2\,A\,b^4\,d-3\,A\,b^6\,d+4\,a^3\,b^3\,B\,d+2\,a\,b^5\,B\,d-3\,a^4\,b^2\,C\,d-a^2\,b^4\,C\,d\big)$$
$$\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\Big)\Big/$$
$$\Big(\big(a^2+b^2\big)^2\,(-b\,c+a\,d)^4\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)-$$
$$\frac{1}{(b\,c-a\,d)^4\,\big(c^2+d^2\big)^3\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3}$$
$$\mathbb{i}\,\big(3\,b^2\,c^6\,C\,d-6\,b^2\,B\,c^5\,d^2+10\,A\,b^2\,c^4\,d^3+4\,a\,b\,B\,c^4\,d^3-b^2\,c^4\,C\,d^3-10\,a\,A\,b\,c^3\,d^4-a^2\,B\,c^3\,d^4-3\,b^2\,B\,c^3\,d^4+10\,a\,b\,c^3\,C\,d^4+3\,a^2\,A\,c^2\,d^5+$$
$$9\,A\,b^2\,c^2\,d^5-6\,a\,b\,B\,c^2\,d^5-3\,a^2\,c^2\,C\,d^5-2\,a\,A\,b\,c\,d^6+3\,a^2\,B\,c\,d^6-b^2\,B\,c\,d^6+2\,a\,b\,c\,C\,d^6-a^2\,A\,d^7+3\,A\,b^2\,d^7-2\,a\,b\,B\,d^7+a^2\,C\,d^7\big)$$
$$\text{ArcTan}[\text{Tan}[e+f\,x]]\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3+$$
$$\Big(\big(2\,a\,A\,b^5\,c-a^2\,b^4\,B\,c+b^6\,B\,c-2\,a\,b^5\,c\,C-5\,a^2\,A\,b^4\,d-3\,A\,b^6\,d+4\,a^3\,b^3\,B\,d+2\,a\,b^5\,B\,d-3\,a^4\,b^2\,C\,d-a^2\,b^4\,C\,d\big)$$
$$\text{Log}\big[(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\big]\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\Big)\Big/$$
$$\Big(2\,\big(a^2+b^2\big)^2\,(-b\,c+a\,d)^4\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)+$$
$$\frac{1}{2\,(b\,c-a\,d)^4\,\big(c^2+d^2\big)^3\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3}$$
$$\big(3\,b^2\,c^6\,C\,d-6\,b^2\,B\,c^5\,d^2+10\,A\,b^2\,c^4\,d^3+4\,a\,b\,B\,c^4\,d^3-b^2\,c^4\,C\,d^3-10\,a\,A\,b\,c^3\,d^4-a^2\,B\,c^3\,d^4-3\,b^2\,B\,c^3\,d^4+10\,a\,b\,c^3\,C\,d^4+3\,a^2\,A\,c^2\,d^5+$$
$$9\,A\,b^2\,c^2\,d^5-6\,a\,b\,B\,c^2\,d^5-3\,a^2\,c^2\,C\,d^5-2\,a\,A\,b\,c\,d^6+3\,a^2\,B\,c\,d^6-b^2\,B\,c\,d^6+2\,a\,b\,c\,C\,d^6-a^2\,A\,d^7+3\,A\,b^2\,d^7-2\,a\,b\,B\,d^7+a^2\,C\,d^7\big)$$
$$\text{Log}\big[(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\big]\,\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3+$$
$$\Big(\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,\big(-A\,b^5\,\text{Sin}[e+f\,x]+a\,b^4\,B\,\text{Sin}[e+f\,x]-a^2\,b^3\,C\,\text{Sin}[e+f\,x]\big)\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3\Big)\Big/$$
$$\Big(a\,(a-\mathbb{i}\,b)\,(a+\mathbb{i}\,b)\,(-b\,c+a\,d)^3\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)+$$
$$\Big(\text{Sec}[e+f\,x]^5\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2$$
$$\big(3\,b\,c^4\,C\,d^2\,\text{Sin}[e+f\,x]-4\,b\,B\,c^3\,d^3\,\text{Sin}[e+f\,x]-a\,c^3\,C\,d^3\,\text{Sin}[e+f\,x]+5\,A\,b\,c^2\,d^4\,\text{Sin}[e+f\,x]+2\,a\,B\,c^2\,d^4\,\text{Sin}[e+f\,x]-$$
$$3\,a\,A\,c\,d^5\,\text{Sin}[e+f\,x]-b\,B\,c\,d^5\,\text{Sin}[e+f\,x]+2\,a\,c\,C\,d^5\,\text{Sin}[e+f\,x]+2\,A\,b\,d^6\,\text{Sin}[e+f\,x]-a\,B\,d^6\,\text{Sin}[e+f\,x]\big)\Big)\Big/$$
$$\Big(c\,(c-\mathbb{i}\,d)^2\,(c+\mathbb{i}\,d)^2\,(b\,c-a\,d)^3\,f\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3\Big)$$

- **Problem 90: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\text{Tan}[e+f\,x])^3\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\big(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\big)\,dx$$

Optimal (type 3, 464 leaves, 12 steps) :

$$-\frac{(a-\mathrm{i}\,b)^3\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\sqrt{c-\mathrm{i}\,d}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}+$$

$$\frac{(a+\mathrm{i}\,b)^3\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,\sqrt{c+\mathrm{i}\,d}\;\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}+\frac{2\left(a^3\,B-3\,a\,b^2\,B+3\,a^2\,b\,(A-C)-b^3\,(A-C)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{1}{315\,d^4\,f}$$

$$2\left(40\,a^3\,C\,d^3-6\,a^2\,b\,d^2\,(16\,c\,C-45\,B\,d)+9\,a\,b^2\,d\left(8\,c^2\,C-14\,B\,c\,d+35\,(A-C)\,d^2\right)-b^3\left(16\,c^3\,C-24\,B\,c^2\,d+42\,c\,(A-C)\,d^2+105\,B\,d^3\right)\right)$$

$$(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}+\frac{2\,b\left(21\,b\,(A\,b+a\,B-b\,C)\,d^2+4\,(b\,c-a\,d)\,(2\,b\,c\,C-3\,b\,B\,d-2\,a\,C\,d)\right)\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{105\,d^3\,f}-$$

$$\frac{2\,(2\,b\,c\,C-3\,b\,B\,d-2\,a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{21\,d^2\,f}+\frac{2\,C\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{9\,d\,f}$$

Result (type 3, 1092 leaves) :

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3}\mathrm{Cos}[e+f\,x]^3$$

$$\Bigg(-\frac{1}{315\,d^4}2\,\big(16\,b^3\,c^4\,C-24\,b^3\,B\,c^3\,d-72\,a\,b^2\,c^3\,C\,d+42\,A\,b^3\,c^2\,d^2+126\,a\,b^2\,B\,c^2\,d^2+126\,a^2\,b\,c^2\,C\,d^2-48\,b^3\,c^2\,C\,d^2-315\,a\,A\,b^2\,c\,d^3-315\,a^2\,b\,B\,c\,d^3+114\,b^3\,B\,c\,d^3-105\,a^3\,c\,C\,d^3+342\,a\,b^2\,c\,C\,d^3-945\,a^2\,A\,b\,d^4+378\,A\,b^3\,d^4-315\,a^3\,B\,d^4+1134\,a\,b^2\,B\,d^4+1134\,a^2\,b\,C\,d^4-413\,b^3\,C\,d^4\big)+\frac{1}{315\,d^2}2\,b\,\big(-6\,b^2\,c^2\,C+9\,b^2\,B\,c\,d+27\,a\,b\,c\,C\,d+63\,A\,b^2\,d^2+189\,a\,b\,B\,d^2+189\,a^2\,C\,d^2-133\,b^2\,C\,d^2\big)\,\mathrm{Sec}[e+f\,x]^2+\frac{2}{9}\,b^3\,C\,\mathrm{Sec}[e+f\,x]^4+\frac{2\,\mathrm{Sec}[e+f\,x]^3\,\big(b^3\,c\,C\,\mathrm{Sin}[e+f\,x]+9\,b^3\,B\,d\,\mathrm{Sin}[e+f\,x]+27\,a\,b^2\,C\,d\,\mathrm{Sin}[e+f\,x]\big)}{63\,d}-\frac{1}{315\,d^3}\,2\,\mathrm{Sec}[e+f\,x]\,\big(-8\,b^3\,c^3\,C\,\mathrm{Sin}[e+f\,x]+12\,b^3\,B\,c^2\,d\,\mathrm{Sin}[e+f\,x]+36\,a\,b^2\,c^2\,C\,d\,\mathrm{Sin}[e+f\,x]-21\,A\,b^3\,c\,d^2\,\mathrm{Sin}[e+f\,x]-63\,a\,b^2\,B\,c\,d^2\,\mathrm{Sin}[e+f\,x]-63\,a^2\,b\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]+26\,b^3\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]-315\,a\,A\,b^2\,d^3\,\mathrm{Sin}[e+f\,x]-315\,a^2\,b\,B\,d^3\,\mathrm{Sin}[e+f\,x]+150\,b^3\,B\,d^3\,\mathrm{Sin}[e+f\,x]-105\,a^3\,C\,d^3\,\mathrm{Sin}[e+f\,x]+450\,a\,b^2\,C\,d^3\,\mathrm{Sin}[e+f\,x]\big)\Bigg)\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}-$$

$$\Bigg(\mathbb{i}\,\big(a^3\,A\,c-3\,a\,A\,b^2\,c-3\,a^2\,b\,B\,c+b^3\,B\,c-a^3\,c\,C+3\,a\,b^2\,c\,C-3\,a^2\,A\,b\,d+A\,b^3\,d-a^3\,B\,d+3\,a\,b^2\,B\,d+3\,a^2\,b\,C\,d-b^3\,C\,d\big)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathbb{i}\,d}}\right]}{\sqrt{c-\mathbb{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathbb{i}\,d}}\right]}{\sqrt{c+\mathbb{i}\,d}}\right)\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])\Bigg)\Big/\Big(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\Big)-$$

$$\Bigg(\big(3\,a^2\,A\,b\,c-A\,b^3\,c+a^3\,B\,c-3\,a\,b^2\,B\,c-3\,a^2\,b\,c\,C+b^3\,c\,C+a^3\,A\,d-3\,a\,A\,b^2\,d-3\,a^2\,b\,B\,d+b^3\,B\,d-a^3\,C\,d+3\,a\,b^2\,C\,d\big)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathbb{i}\,d}}\right]}{\sqrt{c-\mathbb{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathbb{i}\,d}}\right]}{\sqrt{c+\mathbb{i}\,d}}\right)\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])\Bigg)\Big/\Big(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\Big)$$

- **Problem 91: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\mathrm{Tan}[e+f\,x])^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\big(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\big)\,dx$$

Optimal (type 3, 325 leaves, 11 steps):

$$-\frac{(a-i b)^2 (B+i (A-C)) \sqrt{c-i d}\ \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}-\frac{(a+i b)^2 (B-i (A-C)) \sqrt{c+i d}\ \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+$$
$$\frac{2 \left(a^2 B-b^2 B+2 a b (A-C)\right) \sqrt{c+d \text{Tan}[e+f x]}}{f}+\frac{2 \left(20 a^2 C d^2-14 a b d (2 c C-5 B d)+b^2 \left(8 c^2 C-14 B c d+35 (A-C) d^2\right)\right) (c+d \text{Tan}[e+f x])^{3/2}}{105 d^3 f}-$$
$$\frac{2 b (4 b c C-7 b B d-4 a C d) \text{Tan}[e+f x] (c+d \text{Tan}[e+f x])^{3/2}}{35 d^2 f}+\frac{2 C (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])^{3/2}}{7 d f}$$

Result (type 3, 759 leaves):

$$-\left(i \left(a^2 A c-A b^2 c-2 a b B c-a^2 c C+b^2 c C-2 a A b d-a^2 B d+b^2 B d+2 a b C d\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$
$$\left.\text{Cos}[e+f x]^3 (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right)-$$
$$\left(\left(2 a A b c+a^2 B c-b^2 B c-2 a b c C+a^2 A d-A b^2 d-2 a b B d-a^2 C d+b^2 C d\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$
$$\left.\text{Cos}[e+f x]^3 (a+b \text{Tan}[e+f x])^2 (c+d \text{Tan}[e+f x])\right) \Big/ \left(f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right)+$$
$$\frac{1}{f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2} \text{Cos}[e+f x]^2 (a+b \text{Tan}[e+f x])^2 \sqrt{c+d \text{Tan}[e+f x]}$$
$$\left(\frac{1}{105 d^3} 2 \left(8 b^2 c^3 C-14 b^2 B c^2 d-28 a b c^2 C d+35 A b^2 c d^2+70 a b B c d^2+35 a^2 c C d^2-38 b^2 c C d^2+\right.\right.$$
$$\left.210 a A b d^3+105 a^2 B d^3-126 b^2 B d^3-252 a b C d^3\right)+\frac{2 b (b c C+7 b B d+14 a C d) \text{Sec}[e+f x]^2}{35 d}+$$
$$\frac{1}{105 d^2} 2 \text{Sec}[e+f x] \left(-4 b^2 c^2 C \text{Sin}[e+f x]+7 b^2 B c d \text{Sin}[e+f x]+14 a b c C d \text{Sin}[e+f x]+35 A b^2 d^2 \text{Sin}[e+f x]+\right.$$
$$\left.\left.70 a b B d^2 \text{Sin}[e+f x]+35 a^2 C d^2 \text{Sin}[e+f x]-50 b^2 C d^2 \text{Sin}[e+f x]\right)+\frac{2}{7} b^2 C \text{Sec}[e+f x]^2 \text{Tan}[e+f x]\right)$$

Problem 94: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 234 leaves, 12 steps):

$$-\frac{(i\,A+B-i\,C)\,\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)\,f}+\frac{(i\,A-B-i\,C)\,\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)\,f}-$$
$$\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\sqrt{b\,c-a\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{b^{3/2}\,\left(a^2+b^2\right)\,f}+\frac{2\,C\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{b\,f}$$

Result (type ?, 525 533 leaves): Display of huge result suppressed!

Problem 95: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 317 leaves, 12 steps):

$$-\frac{(i\,A+B-i\,C)\,\sqrt{c-i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,f}-\frac{(B-i\,(A-C))\,\sqrt{c+i\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,f}-$$
$$\left(\left(a^3\,b\,B\,d+a^4\,C\,d+b^4\,(2\,B\,c+A\,d)+a\,b^3\,(4\,A\,c-4\,c\,C-3\,B\,d)-a^2\,b^2\,(2\,B\,c+3\,A\,d-5\,C\,d)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]\right)\Big/$$
$$\left(b^{3/2}\,\left(a^2+b^2\right)^2\,\sqrt{b\,c-a\,d}\,f\right)-\frac{\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type ?, 842 888 leaves): Display of huge result suppressed!

Problem 96: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 543 leaves, 13 steps):

$$-\frac{(A-iB-C)\sqrt{c-id}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-id}}\right]}{(ia+b)^3 f}+\frac{(A+iB-C)\sqrt{c+id}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+id}}\right]}{(ia-b)^3 f}+$$

$$\left(\left(3a^5bBd^2+a^6Cd^2-3a^4b^2d\,(4Bc+5Ad-6Cd)-3a^2b^4\left(8Ac^2-8c^2C-16Bcd-6Ad^2+5Cd^2\right)+2a^3b^3\left(20c\,(A-C)\,d+B\left(4c^2-13d^2\right)\right)-\right.\right.$$
$$\left.\left.3ab^5\left(8c\,(A-C)\,d+B\left(8c^2-d^2\right)\right)-b^6\left(4c\,(2cC+Bd)-A\left(8c^2+d^2\right)\right)\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{bc-ad}}\right]\right)\Big/$$
$$\left(4b^{3/2}\left(a^2+b^2\right)^3(bc-ad)^{3/2}f\right)-\frac{\left(Ab^2-a\,(bB-aC)\right)\sqrt{c+d\,\text{Tan}[e+fx]}}{2b\left(a^2+b^2\right)f\,(a+b\,\text{Tan}[e+fx])^2}-$$
$$\left(\left(3a^3bBd+a^4Cd+b^4\,(4Bc+Ad)+ab^3\,(8Ac-8cC-5Bd)-a^2b^2\,(4Bc+7Ad-9Cd)\right)\sqrt{c+d\,\text{Tan}[e+fx]}\right)\Big/$$
$$\left(4b\left(a^2+b^2\right)^2(bc-ad)\,f\,(a+b\,\text{Tan}[e+fx])\right)$$

Result (type ?, 1 853 832 leaves) : Display of huge result suppressed!

Problem 97: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+fx])^3\,(c+d\,\text{Tan}[e+fx])^{3/2}\left(A+B\,\text{Tan}[e+fx]+C\,\text{Tan}[e+fx]^2\right)dx$$

Optimal (type 3, 550 leaves, 13 steps) :

$$\frac{(ia+b)^3\,(A-iB-C)\,(c-id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-id}}\right]}{f}+\frac{(a+ib)^3\,(iA-B-iC)\,(c+id)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+id}}\right]}{f}+$$
$$\frac{1}{f}2\left(3a^2b\,(Ac-cC-Bd)-b^3\,(Ac-cC-Bd)+a^3\,(Bc+(A-C)\,d)-3ab^2\,(Bc+(A-C)\,d)\right)\sqrt{c+d\,\text{Tan}[e+fx]}+$$
$$\frac{2\left(a^3B-3ab^2B+3a^2b\,(A-C)-b^3\,(A-C)\right)(c+d\,\text{Tan}[e+fx])^{3/2}}{3f}+\frac{1}{3465\,d^4 f}$$
$$2\left(168a^3Cd^3-2a^2bd^2\,(192cC-847Bd)+33ab^2d\left(8c^2C-18Bcd+63\,(A-C)\,d^2\right)-b^3\left(48c^3C-88Bc^2d+198c\,(A-C)\,d^2+693Bd^3\right)\right)$$
$$(c+d\,\text{Tan}[e+fx])^{5/2}+\frac{2b\left(99b\,(Ab+aB-bC)\,d^2+4\,(bc-ad)\,(6bcC-11bBd-6aCd)\right)\text{Tan}[e+fx]\,(c+d\,\text{Tan}[e+fx])^{5/2}}{693\,d^3 f}-$$
$$\frac{2\,(6bcC-11bBd-6aCd)\,(a+b\,\text{Tan}[e+fx])^2\,(c+d\,\text{Tan}[e+fx])^{5/2}}{99\,d^2 f}+\frac{2C\,(a+b\,\text{Tan}[e+fx])^3\,(c+d\,\text{Tan}[e+fx])^{5/2}}{11\,d\,f}$$

Result (type 3, 1610 leaves) :

$$-\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}$$
$$i\,\big(a^3\,A\,c^2-3\,a\,A\,b^2\,c^2-3\,a^2\,b\,B\,c^2+b^3\,B\,c^2-a^3\,c^2\,C+3\,a\,b^2\,c^2\,C-6\,a^2\,A\,b\,c\,d+2\,A\,b^3\,c\,d-2\,a^3\,B\,c\,d+$$
$$6\,a\,b^2\,B\,c\,d+6\,a^2\,b\,c\,C\,d-2\,b^3\,c\,C\,d-a^3\,A\,d^2+3\,a\,A\,b^2\,d^2+3\,a^2\,b\,B\,d^2-b^3\,B\,d^2+a^3\,C\,d^2-3\,a\,b^2\,C\,d^2\big)$$
$$\left(\frac{\mathrm{ArcTanh}\Big[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\Big]}{\sqrt{c-i\,d}}-\frac{\mathrm{ArcTanh}\Big[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\Big]}{\sqrt{c+i\,d}}\right)\mathrm{Cos}[e+f\,x]^5\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^2-$$

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}\big(3\,a^2\,A\,b\,c^2-A\,b^3\,c^2+a^3\,B\,c^2-3\,a\,b^2\,B\,c^2-3\,a^2\,b\,c^2\,C+b^3\,c^2\,C+$$
$$2\,a^3\,A\,c\,d-6\,a\,A\,b^2\,c\,d-6\,a^2\,b\,B\,c\,d+2\,b^3\,B\,c\,d-2\,a^3\,c\,C\,d+6\,a\,b^2\,c\,C\,d-3\,a^2\,A\,b\,d^2+A\,b^3\,d^2-a^3\,B\,d^2+3\,a\,b^2\,B\,d^2+3\,a^2\,b\,C\,d^2-b^3\,C\,d^2\big)$$
$$\left(\frac{\mathrm{ArcTanh}\Big[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\Big]}{\sqrt{c-i\,d}}+\frac{\mathrm{ArcTanh}\Big[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\Big]}{\sqrt{c+i\,d}}\right)\mathrm{Cos}[e+f\,x]^5\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^2+$$

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}$$
$$\Big(\frac{1}{3465\,d^4}2\,\big(-48\,b^3\,c^5\,C+88\,b^3\,B\,c^4\,d+264\,a\,b^2\,c^4\,C\,d-198\,A\,b^3\,c^3\,d^2-594\,a\,b^2\,B\,c^3\,d^2-594\,a^2\,b\,c^3\,C\,d^2+216\,b^3\,c^3\,C\,d^2+2079\,a\,A\,b^2\,c^2\,d^3+$$
$$2079\,a^2\,b\,B\,c^2\,d^3-726\,b^3\,B\,c^2\,d^3+693\,a^3\,c^2\,C\,d^3-2178\,a\,b^2\,c^2\,C\,d^3+13\,860\,a^2\,A\,b\,c\,d^4-5412\,A\,b^3\,c\,d^4+4620\,a^3\,B\,c\,d^4-16\,236\,a\,b^2\,B\,c\,d^4-$$
$$16\,236\,a^2\,b\,c\,C\,d^4+5832\,b^3\,c\,C\,d^4+3465\,a^3\,A\,d^5-12\,474\,a\,A\,b^2\,d^5-12\,474\,a^2\,b\,B\,d^5+4543\,b^3\,B\,d^5-4158\,a^3\,C\,d^5+13\,629\,a\,b^2\,C\,d^5\big)+$$
$$\frac{1}{3465\,d^2}2\,\big(-18\,b^3\,c^3\,C+33\,b^3\,B\,c^2\,d+99\,a\,b^2\,c^2\,C\,d+792\,A\,b^3\,c\,d^2+2376\,a\,b^2\,B\,c\,d^2+2376\,a^2\,b\,c\,C\,d^2-1632\,b^3\,c\,C\,d^2+$$
$$2079\,a\,A\,b^2\,d^3+2079\,a^2\,b\,B\,d^3-1463\,b^3\,B\,d^3+693\,a^3\,C\,d^3-4389\,a\,b^2\,C\,d^3\big)\,\mathrm{Sec}[e+f\,x]^2+$$
$$\frac{2}{99}\,b^2\,(12\,b\,c\,C+11\,b\,B\,d+33\,a\,C\,d)\,\mathrm{Sec}[e+f\,x]^4+\frac{1}{693\,d}2\,\mathrm{Sec}[e+f\,x]^3\,\big(3\,b^3\,c^2\,C\,\mathrm{Sin}[e+f\,x]+110\,b^3\,B\,c\,d\,\mathrm{Sin}[e+f\,x]+$$
$$330\,a\,b^2\,c\,C\,d\,\mathrm{Sin}[e+f\,x]+99\,A\,b^3\,d^2\,\mathrm{Sin}[e+f\,x]+297\,a\,b^2\,B\,d^2\,\mathrm{Sin}[e+f\,x]+297\,a^2\,b\,C\,d^2\,\mathrm{Sin}[e+f\,x]-225\,b^3\,C\,d^2\,\mathrm{Sin}[e+f\,x]\big)-$$
$$\frac{1}{3465\,d^3}\,2\,\mathrm{Sec}[e+f\,x]\,\big(-24\,b^3\,c^4\,C\,\mathrm{Sin}[e+f\,x]+44\,b^3\,B\,c^3\,d\,\mathrm{Sin}[e+f\,x]+132\,a\,b^2\,c^3\,C\,d\,\mathrm{Sin}[e+f\,x]-99\,A\,b^3\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]-$$
$$297\,a\,b^2\,B\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]-297\,a^2\,b\,c^2\,C\,d^2\,\mathrm{Sin}[e+f\,x]+114\,b^3\,c^2\,C\,d^2\,\mathrm{Sin}[e+f\,x]-4158\,a\,A\,b^2\,c\,d^3\,\mathrm{Sin}[e+f\,x]-$$
$$4158\,a^2\,b\,B\,c\,d^3\,\mathrm{Sin}[e+f\,x]+1936\,b^3\,B\,c\,d^3\,\mathrm{Sin}[e+f\,x]-1386\,a^3\,c\,C\,d^3\,\mathrm{Sin}[e+f\,x]+5808\,a\,b^2\,c\,C\,d^3\,\mathrm{Sin}[e+f\,x]-$$
$$3465\,a^2\,A\,b\,d^4\,\mathrm{Sin}[e+f\,x]+1650\,A\,b^3\,d^4\,\mathrm{Sin}[e+f\,x]-1155\,a^3\,B\,d^4\,\mathrm{Sin}[e+f\,x]+4950\,a\,b^2\,B\,d^4\,\mathrm{Sin}[e+f\,x]+$$
$$4950\,a^2\,b\,C\,d^4\,\mathrm{Sin}[e+f\,x]-1965\,b^3\,C\,d^4\,\mathrm{Sin}[e+f\,x]\big)+\frac{2}{11}\,b^3\,C\,d\,\mathrm{Sec}[e+f\,x]^4\,\mathrm{Tan}[e+f\,x]\Big)$$

- **Problem 98: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,\big(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\big)\,dx$$

Optimal (type 3, 396 leaves, 12 steps):

$$-\frac{(a-\mathrm{i}\,b)^2\,(B+\mathrm{i}\,(A-C))\,(c-\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}+\frac{(a+\mathrm{i}\,b)^2\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,(c+\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}+$$

$$\frac{2\left(2\,a\,b\,(A\,c-c\,C-B\,d)+a^2\,(B\,c+(A-C)\,d)-b^2\,(B\,c+(A-C)\,d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{2\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+$$

$$\frac{2\left(28\,a^2\,C\,d^2-18\,a\,b\,d\,(2\,c\,C-7\,B\,d)+b^2\left(8\,c^2\,C-18\,B\,c\,d+63\,(A-C)\,d^2\right)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{315\,d^3\,f}-$$

$$\frac{2\,b\,(4\,b\,c\,C-9\,b\,B\,d-4\,a\,C\,d)\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{63\,d^2\,f}+\frac{2\,C\,(a+b\,\mathrm{Tan}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{9\,d\,f}$$

Result (type 3, 1099 leaves) :

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}$$

$$\text{Cos}[e+f\,x]^3\left(\frac{1}{315\,d^3}2\,\left(8\,b^2\,c^4\,C-18\,b^2\,B\,c^3\,d-36\,a\,b\,c^3\,C\,d+63\,A\,b^2\,c^2\,d^2+126\,a\,b\,B\,c^2\,d^2+63\,a^2\,c^2\,C\,d^2-66\,b^2\,c^2\,C\,d^2+840\,a\,A\,b\,c\,d^3+420\,a^2\,B\,c\,d^3-492\,b^2\,B\,c\,d^3-984\,a\,b\,c\,C\,d^3+315\,a^2\,A\,d^4-378\,A\,b^2\,d^4-756\,a\,b\,B\,d^4-378\,a^2\,C\,d^4+413\,b^2\,C\,d^4\right)+\frac{2\,\left(3\,b^2\,c^2\,C+72\,b^2\,B\,c\,d+144\,a\,b\,c\,C\,d+63\,A\,b^2\,d^2+126\,a\,b\,B\,d^2+63\,a^2\,C\,d^2-133\,b^2\,C\,d^2\right)\,\text{Sec}[e+f\,x]^2}{315\,d}+\frac{2}{9}\,b^2\,C\,d\,\text{Sec}[e+f\,x]^4+\frac{2}{63}\,\text{Sec}[e+f\,x]^3\,\left(10\,b^2\,c\,C\,\text{Sin}[e+f\,x]+9\,b^2\,B\,d\,\text{Sin}[e+f\,x]+18\,a\,b\,C\,d\,\text{Sin}[e+f\,x]\right)-\frac{1}{315\,d^2}\,2\,\text{Sec}[e+f\,x]\,\left(4\,b^2\,c^3\,C\,\text{Sin}[e+f\,x]-9\,b^2\,B\,c^2\,d\,\text{Sin}[e+f\,x]-18\,a\,b\,c^2\,C\,d\,\text{Sin}[e+f\,x]-126\,A\,b^2\,c\,d^2\,\text{Sin}[e+f\,x]-252\,a\,b\,B\,c\,d^2\,\text{Sin}[e+f\,x]-126\,a^2\,c\,C\,d^2\,\text{Sin}[e+f\,x]+176\,b^2\,c\,C\,d^2\,\text{Sin}[e+f\,x]-210\,a\,A\,b\,d^3\,\text{Sin}[e+f\,x]-105\,a^2\,B\,d^3\,\text{Sin}[e+f\,x]+150\,b^2\,B\,d^3\,\text{Sin}[e+f\,x]+300\,a\,b\,C\,d^3\,\text{Sin}[e+f\,x]\right)\right)\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{3/2}-$$

$$\left(i\,\left(a^2\,A\,c^2-A\,b^2\,c^2-2\,a\,b\,B\,c^2-a^2\,c^2\,C+b^2\,c^2\,C-4\,a\,A\,b\,c\,d-2\,a^2\,B\,c\,d+2\,b^2\,B\,c\,d+4\,a\,b\,c\,C\,d-a^2\,A\,d^2+A\,b^2\,d^2+2\,a\,b\,B\,d^2+a^2\,C\,d^2-b^2\,C\,d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\,\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)-$$

$$\left(\left(2\,a\,A\,b\,c^2+a^2\,B\,c^2-b^2\,B\,c^2-2\,a\,b\,c^2\,C+2\,a^2\,A\,c\,d-2\,A\,b^2\,c\,d-4\,a\,b\,B\,c\,d-2\,a^2\,c\,C\,d+2\,b^2\,c\,C\,d-2\,a\,A\,b\,d^2-a^2\,B\,d^2+b^2\,B\,d^2+2\,a\,b\,C\,d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\,\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\right)$$

- **Problem 99: Result more than twice size of optimal antiderivative.**

$$\int(a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 273 leaves, 11 steps):

$$-\frac{(i a+b)\,(A-i B-C)\,(c-i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}+\frac{(i a-b)\,(A+i B-C)\,(c+i d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+$$
$$\frac{2\,(A b c+a B c-b c C+a A d-b B d-a C d)\,\sqrt{c+d\,\text{Tan}[e+f x]}}{f}+\frac{2\,(A b+a B-b C)\,(c+d\,\text{Tan}[e+f x])^{3/2}}{3 f}-$$
$$\frac{2\,(2 b c C-7 b B d-7 a C d)\,(c+d\,\text{Tan}[e+f x])^{5/2}}{35 d^2 f}+\frac{2 b C\,\text{Tan}[e+f x]\,(c+d\,\text{Tan}[e+f x])^{5/2}}{7 d f}$$

Result (type 3, 714 leaves) :

$$-\left(i\,\left(a A c^2-b B c^2-a c^2 C-2 A b c d-2 a B c d+2 b c C d-a A d^2+b B d^2+a C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$
$$\left.\text{Cos}[e+f x]^3\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)-$$
$$\left(\left(A b c^2+a B c^2-b c^2 C+2 a A c d-2 b B c d-2 a c C d-A b d^2-a B d^2+b C d^2\right)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$
$$\left.\text{Cos}[e+f x]^3\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^2\right)\Big/\left(f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])^2\right)+$$
$$\frac{1}{f\,(a\,\text{Cos}[e+f x]+b\,\text{Sin}[e+f x])\,(c\,\text{Cos}[e+f x]+d\,\text{Sin}[e+f x])}\,\text{Cos}[e+f x]^2\,(a+b\,\text{Tan}[e+f x])\,(c+d\,\text{Tan}[e+f x])^{3/2}$$
$$\left(-\frac{1}{105 d^2}2\,\left(6 b c^3 C-21 b B c^2 d-21 a c^2 C d-140 A b c d^2-140 a B c d^2+164 b c C d^2-105 a A d^3+126 b B d^3+126 a C d^3\right)+\right.$$
$$\frac{2}{35}\,(8 b c C+7 b B d+7 a C d)\,\text{Sec}[e+f x]^2+\frac{1}{105 d}2\,\text{Sec}[e+f x]\,\left(3 b c^2 C\,\text{Sin}[e+f x]+42 b B c d\,\text{Sin}[e+f x]+\right.$$
$$\left.\left.42 a c C d\,\text{Sin}[e+f x]+35 A b d^2\,\text{Sin}[e+f x]+35 a B d^2\,\text{Sin}[e+f x]-50 b C d^2\,\text{Sin}[e+f x]\right)+\frac{2}{7}\,b C d\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)$$

- **Problem 100: Result more than twice size of optimal antiderivative.**

$$\int (c+d\,\text{Tan}[e+f x])^{3/2}\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)\,dx$$

Optimal (type 3, 187 leaves, 10 steps) :

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C)\,(c-\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i} d}}\right]}{f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i} d}}\right]}{f}+$$
$$\frac{2\,(B\,c+(A-C)\,d)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+\frac{2\,B\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{2\,C\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,d\,f}$$

Result (type 3, 420 leaves) :

$$\left(\mathrm{Cos}[e+f\,x]\left(\frac{2\left(3\,c^2\,C+20\,B\,c\,d+15\,A\,d^2-18\,C\,d^2\right)}{15\,d}+\frac{2}{5}\,C\,d\,\mathrm{Sec}[e+f\,x]^2+\frac{2}{15}\,\mathrm{Sec}[e+f\,x]\,(6\,c\,C\,\mathrm{Sin}[e+f\,x]+5\,B\,d\,\mathrm{Sin}[e+f\,x])\right)\right.$$
$$\left.(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\right)\Big/\,(f\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]))-$$
$$\left(\mathrm{i}\left(A\,c^2-c^2\,C-2\,B\,c\,d-A\,d^2+C\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\mathrm{Cos}[e+f\,x]^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)\Big/$$
$$\left(f\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right)-$$
$$\left(\left(B\,c^2+2\,A\,c\,d-2\,c\,C\,d-B\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i} d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i} d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\mathrm{Cos}[e+f\,x]^2\,(c+d\,\mathrm{Tan}[e+f\,x])^2\right)\Big/$$
$$\left(f\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2\right)$$

Problem 101: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{a+b\,\mathrm{Tan}[e+f\,x]}\,dx$$

Optimal (type 3, 271 leaves, 13 steps) :

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C)\,(c-\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i} d}}\right]}{(a-\mathrm{i}\,b)\,f}-\frac{(A+\mathrm{i}\,B-C)\,(c+\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i} d}}\right]}{(\mathrm{i}\,a-b)\,f}-$$
$$\frac{2\left(A\,b^2-a\,(b\,B-a\,C)\right)(b\,c-a\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{b^{5/2}\left(a^2+b^2\right)f}+\frac{2\,(b\,c\,C+b\,B\,d-a\,C\,d)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{b^2\,f}+\frac{2\,C\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,b\,f}$$

Result (type ?, 796 117 leaves) : Display of huge result suppressed!

Problem 102: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 372 leaves, 13 steps):

$$-\frac{(i A+B-i C)(c-i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a-i b)^2 f}-\frac{(B-i(A-C))(c+i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b)^2 f}+\frac{1}{b^{5/2}\left(a^2+b^2\right)^2 f}$$

$$\sqrt{b c-a d}\left(a^3 b B d-3 a^4 C d-b^4(2 B c+3 A d)-a b^3(4 A c-4 c C-5 B d)+a^2 b^2(2 B c+(A-7 C) d)\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]+$$

$$\frac{\left(A b^2-a b B+3 a^2 C+2 b^2 C\right) d \sqrt{c+d \operatorname{Tan}[e+f x]}}{b^2\left(a^2+b^2\right) f}-\frac{\left(A b^2-a(b B-a C)\right)(c+d \operatorname{Tan}[e+f x])^{3/2}}{b\left(a^2+b^2\right) f(a+b \operatorname{Tan}[e+f x])}$$

Result (type ?, 1 313 997 leaves): Display of huge result suppressed!

■ Problem 103: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d \operatorname{Tan}[e+f x])^{3/2}\left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{(a+b \operatorname{Tan}[e+f x])^3} \, dx$$

Optimal (type 3, 532 leaves, 13 steps):

$$-\frac{(A-i B-C)(c-i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b)^3 f}+\frac{(A+i B-C)(c+i d)^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(i a-b)^3 f}-$$

$$\left(\left(a^5 b B d^2+3 a^6 C d^2+a^4 b^2 d(4 B c+3(A+2 C) d)-b^6\left(8 A c^2-8 c^2 C-12 B c d-3 A d^2\right)+a^2 b^4\left(24 A c^2-24 c^2 C-48 B c d-26 A d^2+35 C d^2\right)-\right.\right.$$

$$\left.\left.2 a^3 b^3\left(12 c(A-C) d+B\left(4 c^2-9 d^2\right)\right)+a b^5\left(40 c(A-C) d+3 B\left(8 c^2-5 d^2\right)\right)\right) \operatorname{ArcTanh}\left[\frac{\sqrt{b} \sqrt{c+d \operatorname{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]\right) /$$

$$\left(4 b^{5/2}\left(a^2+b^2\right)^3 \sqrt{b c-a d}\, f\right)-\left(\left(a^3 b B d+3 a^4 C d+b^4(4 B c+3 A d)+a b^3(8 A c-8 c C-7 B d)-a^2 b^2(4 B c+5 A d-11 C d)\right)\right.$$

$$\left.\sqrt{c+d \operatorname{Tan}[e+f x]}\right) /\left(4 b^2\left(a^2+b^2\right)^2 f(a+b \operatorname{Tan}[e+f x])\right)-\frac{\left(A b^2-a(b B-a C)\right)(c+d \operatorname{Tan}[e+f x])^{3/2}}{2 b\left(a^2+b^2\right) f(a+b \operatorname{Tan}[e+f x])^2}$$

Result (type ?, 1 783 377 leaves): Display of huge result suppressed!

■ Problem 104: Result more than twice size of optimal antiderivative.

$$\int (a+b \operatorname{Tan}[e+f x])^2 (c+d \operatorname{Tan}[e+f x])^{5/2}\left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right) dx$$

Optimal (type 3, 503 leaves, 13 steps):

$$-\frac{(a-\mathrm{i}\,b)^2\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}+\frac{(a+\mathrm{i}\,b)^2\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,(c+\mathrm{i}\,d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}-\frac{1}{f}$$

$$2\,\left(2\,a\,b\,\left(c^2\,C+2\,B\,c\,d-C\,d^2-A\,\left(c^2-d^2\right)\right)-a^2\,\left(2\,c\,(A-C)\,d+B\,\left(c^2-d^2\right)\right)+b^2\,\left(2\,c\,(A-C)\,d+B\,\left(c^2-d^2\right)\right)\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\,+$$

$$\frac{2\,\left(2\,a\,b\,(A\,c-c\,C-B\,d)+a^2\,(B\,c+(A-C)\,d)-b^2\,(B\,c+(A-C)\,d)\right)\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{2\,\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{5\,f}+$$

$$\frac{2\,\left(36\,a^2\,C\,d^2-22\,a\,b\,d\,(2\,c\,C-9\,B\,d)+b^2\,\left(8\,c^2\,C-22\,B\,c\,d+99\,(A-C)\,d^2\right)\right)\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{693\,d^3\,f}-$$

$$\frac{2\,b\,(4\,b\,c\,C-11\,b\,B\,d-4\,a\,C\,d)\,\text{Tan}[e+f\,x]\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{99\,d^2\,f}+\frac{2\,C\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{7/2}}{11\,d\,f}$$

Result (type 3, 1480 leaves) :

$$-\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3}$$
$$i\,\left(a^2 A c^3-A b^2 c^3-2 a b B c^3-a^2 c^3 C+b^2 c^3 C-6 a A b c^2 d-3 a^2 B c^2 d+3 b^2 B c^2 d+6 a b c^2 C d-3 a^2 A c d^2+3 A b^2 c d^2+6 a b B c d^2+3 a^2 c C d^2-3 b^2 c C d^2+2 a A b d^3+a^2 B d^3-b^2 B d^3-2 a b C d^3\right)$$
$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\text{Cos}[e+f\,x]^5\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3-$$

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^3}\left(2 a A b c^3+a^2 B c^3-b^2 B c^3-2 a b c^3 C+3 a^2 A c^2 d-3 A b^2 c^2 d-6 a b B c^2 d-3 a^2 c^2 C d+3 b^2 c^2 C d-6 a A b c d^2-3 a^2 B c d^2+3 b^2 B c d^2+6 a b c C d^2-a^2 A d^3+A b^2 d^3+2 a b B d^3+a^2 C d^3-b^2 C d^3\right)$$
$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\text{Cos}[e+f\,x]^5\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^3+$$

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^2\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2}\text{Cos}[e+f\,x]^4\,(a+b\,\text{Tan}[e+f\,x])^2\,(c+d\,\text{Tan}[e+f\,x])^{5/2}$$
$$\left(\frac{1}{3465\,d^3}2\left(40 b^2 c^5 C-110 b^2 B c^4 d-220 a b c^4 C d+495 A b^2 c^3 d^2+990 a b B c^3 d^2+495 a^2 c^3 C d^2-510 b^2 c^3 C d^2+10626 a A b c^2 d^3+\right.\right.$$
$$5313 a^2 B c^2 d^3-6138 b^2 B c^2 d^3-12276 a b c^2 C d^3+8085 a^2 A c d^4-9570 A b^2 c d^4-19140 a b B c d^4-9570 a^2 c C d^4+10375 b^2 c C d^4-$$
$$\left.8316 a A b d^5-4158 a^2 B d^5+4543 b^2 B d^5+9086 a b C d^5\right)+\frac{1}{3465\,d}2\left(15 b^2 c^3 C+825 b^2 B c^2 d+1650 a b c^2 C d+1485 A b^2 c d^2+\right.$$
$$\left.2970 a b B c d^2+1485 a^2 c C d^2-3095 b^2 c C d^2+1386 a A b d^3+693 a^2 B d^3-1463 b^2 B d^3-2926 a b C d^3\right)\text{Sec}[e+f\,x]^2+$$
$$\frac{2}{99}b\,d\,(23 b c C+11 b B d+22 a C d)\,\text{Sec}[e+f\,x]^4+\frac{2}{693}\text{Sec}[e+f\,x]^3\left(113 b^2 c^2 C\,\text{Sin}[e+f\,x]+209 b^2 B c d\,\text{Sin}[e+f\,x]+\right.$$
$$\left.418 a b c C d\,\text{Sin}[e+f\,x]+99 A b^2 d^2\,\text{Sin}[e+f\,x]+198 a b B d^2\,\text{Sin}[e+f\,x]+99 a^2 C d^2\,\text{Sin}[e+f\,x]-225 b^2 C d^2\,\text{Sin}[e+f\,x]\right)-$$
$$\frac{1}{3465\,d^2}2\,\text{Sec}[e+f\,x]\left(20 b^2 c^4 C\,\text{Sin}[e+f\,x]-55 b^2 B c^3 d\,\text{Sin}[e+f\,x]-110 a b c^3 C d\,\text{Sin}[e+f\,x]-1485 A b^2 c^2 d^2\,\text{Sin}[e+f\,x]-\right.$$
$$2970 a b B c^2 d^2\,\text{Sin}[e+f\,x]-1485 a^2 c^2 C d^2\,\text{Sin}[e+f\,x]+2050 b^2 c^2 C d^2\,\text{Sin}[e+f\,x]-5082 a A b c d^3\,\text{Sin}[e+f\,x]-$$
$$2541 a^2 B c d^3\,\text{Sin}[e+f\,x]+3586 b^2 B c d^3\,\text{Sin}[e+f\,x]+7172 a b c C d^3\,\text{Sin}[e+f\,x]-1155 a^2 A d^4\,\text{Sin}[e+f\,x]+1650 A b^2 d^4\,\text{Sin}[e+f\,x]+$$
$$\left.\left.3300 a b B d^4\,\text{Sin}[e+f\,x]+1650 a^2 C d^4\,\text{Sin}[e+f\,x]-1965 b^2 C d^4\,\text{Sin}[e+f\,x]\right)+\frac{2}{11}b^2 C d^2\,\text{Sec}[e+f\,x]^4\,\text{Tan}[e+f\,x]\right)$$

■ Problem 105: Result more than twice size of optimal antiderivative.

$$\int (a+b\,\text{Tan}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{5/2}\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)dx$$

Optimal (type 3, 353 leaves, 12 steps):

$$-\frac{(\mathrm{i}\,a+b)\,(A-\mathrm{i}\,B-C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{f}+\frac{(\mathrm{i}\,a-b)\,(A+\mathrm{i}\,B-C)\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{f}+$$

$$\frac{2\left(a\left(B\,c^2-2\,c\,C\,d-B\,d^2\right)-b\left(c^2\,C+2\,B\,c\,d-C\,d^2\right)+A\left(2\,a\,c\,d+b\left(c^2-d^2\right)\right)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{f}+$$

$$\frac{2\,(A\,b\,c+a\,B\,c-b\,c\,C+a\,A\,d-b\,B\,d-a\,C\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,f}+\frac{2\,(A\,b+a\,B-b\,C)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{5\,f}-$$

$$\frac{2\,(2\,b\,c\,C-9\,b\,B\,d-9\,a\,C\,d)\,(c+d\,\mathrm{Tan}[e+f\,x])^{7/2}}{63\,d^2\,f}+\frac{2\,b\,C\,\mathrm{Tan}[e+f\,x]\,(c+d\,\mathrm{Tan}[e+f\,x])^{7/2}}{9\,d\,f}$$

Result (type 3, 921 leaves) :

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}$$

$$\mathrm{Cos}[e+f\,x]^3\left(\frac{1}{315\,d^2}2\,(-10\,b\,c^4\,C+45\,b\,B\,c^3\,d+45\,a\,c^3\,C\,d+483\,A\,b\,c^2\,d^2+483\,a\,B\,c^2\,d^2-558\,b\,c^2\,C\,d^2+735\,a\,A\,c\,d^3-870\,b\,B\,c\,d^3-870\,a\,c\,C\,d^3-378\,A\,b\,d^4-378\,a\,B\,d^4+413\,b\,C\,d^4)+\frac{2}{315}\,(75\,b\,c^2\,C+135\,b\,B\,c\,d+135\,a\,c\,C\,d+63\,A\,b\,d^2+63\,a\,B\,d^2-133\,b\,C\,d^2)\,\mathrm{Sec}[e+f\,x]^2+\frac{2}{9}\,b\,C\,d^2\,\mathrm{Sec}[e+f\,x]^4+\frac{2}{63}\,\mathrm{Sec}[e+f\,x]^3\,(19\,b\,c\,C\,d\,\mathrm{Sin}[e+f\,x]+9\,b\,B\,d^2\,\mathrm{Sin}[e+f\,x]+9\,a\,C\,d^2\,\mathrm{Sin}[e+f\,x])-\frac{1}{315\,d}2\,\mathrm{Sec}[e+f\,x]\,(-5\,b\,c^3\,C\,\mathrm{Sin}[e+f\,x]-135\,b\,B\,c^2\,d\,\mathrm{Sin}[e+f\,x]-135\,a\,c^2\,C\,d\,\mathrm{Sin}[e+f\,x]-231\,A\,b\,c\,d^2\,\mathrm{Sin}[e+f\,x]-231\,a\,B\,c\,d^2\,\mathrm{Sin}[e+f\,x]+326\,b\,c\,C\,d^2\,\mathrm{Sin}[e+f\,x]-105\,a\,A\,d^3\,\mathrm{Sin}[e+f\,x]+150\,b\,B\,d^3\,\mathrm{Sin}[e+f\,x]+150\,a\,C\,d^3\,\mathrm{Sin}[e+f\,x])\right)\,(a+b\,\mathrm{Tan}[e+f\,x])$$

$$(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}-\left(i\,(a\,A\,c^3-b\,B\,c^3-a\,c^3\,C-3\,A\,b\,c^2\,d-3\,a\,B\,c^2\,d+3\,b\,c^2\,C\,d-3\,a\,A\,c\,d^2+3\,b\,B\,c\,d^2+3\,a\,c\,C\,d^2+A\,b\,d^3+a\,B\,d^3-b\,C\,d^3)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/$$

$$\left(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)-$$

$$\left((A\,b\,c^3+a\,B\,c^3-b\,c^3\,C+3\,a\,A\,c^2\,d-3\,b\,B\,c^2\,d-3\,a\,c^2\,C\,d-3\,A\,b\,c\,d^2-3\,a\,B\,c\,d^2+3\,b\,c\,C\,d^2-a\,A\,d^3+b\,B\,d^3+a\,C\,d^3)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\mathrm{Cos}[e+f\,x]^4\,(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^3\right)\Big/$$

$$\left(f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\right)$$

■ Problem 106: Result more than twice size of optimal antiderivative.

$$\int (c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2)\,dx$$

Optimal (type 3, 229 leaves, 11 steps) :

$$-\frac{(i A+B-i C)(c-i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{f}-\frac{(B-i (A-C))(c+i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{f}+\frac{2\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{f}+\frac{2 (B c+(A-C) d)(c+d\,\mathrm{Tan}[e+f x])^{3/2}}{3 f}+\frac{2 B (c+d\,\mathrm{Tan}[e+f x])^{5/2}}{5 f}+\frac{2 C (c+d\,\mathrm{Tan}[e+f x])^{7/2}}{7 d f}$$

Result (type 3, 515 leaves):

$$-\left(i\left(A c^3-c^3 C-3 B c^2 d-3 A c d^2+3 c C d^2+B d^3\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\mathrm{Cos}[e+f x]^3 (c+d\,\mathrm{Tan}[e+f x])^3\right)\Big/$$
$$\left(f (c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3\right)-$$
$$\left(\left(B c^3+3 A c^2 d-3 c^2 C d-3 B c d^2-A d^3+C d^3\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\mathrm{Cos}[e+f x]^3 (c+d\,\mathrm{Tan}[e+f x])^3\right)\Big/$$
$$\left(f (c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^3\right)+$$
$$\left(\mathrm{Cos}[e+f x]^2 (c+d\,\mathrm{Tan}[e+f x])^{5/2}\left(\frac{2\left(15 c^3 C+161 B c^2 d+245 A c d^2-290 c C d^2-126 B d^3\right)}{105 d}+\frac{2}{35} d (15 c C+7 B d)\,\mathrm{Sec}[e+f x]^2+\right.\right.$$
$$\frac{2}{105}\mathrm{Sec}[e+f x]\left(45 c^2 C\,\mathrm{Sin}[e+f x]+77 B c d\,\mathrm{Sin}[e+f x]+35 A d^2\,\mathrm{Sin}[e+f x]-50 C d^2\,\mathrm{Sin}[e+f x]\right)+$$
$$\left.\left.\frac{2}{7} C d^2\,\mathrm{Sec}[e+f x]^2\,\mathrm{Tan}[e+f x]\right)\right)\Big/\left(f (c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^2\right)$$

Problem 107: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\,\mathrm{Tan}[e+f x])^{5/2}\left(A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2\right)}{a+b\,\mathrm{Tan}[e+f x]}\,dx$$

Optimal (type 3, 336 leaves, 14 steps):

$$-\frac{(i A+B-i C)(c-i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a-i b) f}+\frac{(i A-B-i C)(c+i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b) f}-$$
$$\frac{2\left(A b^2-a (b B-a C)\right)(b c-a d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{b^{7/2}\left(a^2+b^2\right) f}+\frac{2\left(b^2 d (B c+(A-C) d)+(b c-a d)(b c C+b B d-a C d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{b^3 f}+$$
$$\frac{2 (b c C+b B d-a C d)(c+d\,\mathrm{Tan}[e+f x])^{3/2}}{3 b^2 f}+\frac{2 C (c+d\,\mathrm{Tan}[e+f x])^{5/2}}{5 b f}$$

Result (type ?, 1 076 879 leaves): Display of huge result suppressed!

Problem 108: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 3, 473 leaves, 14 steps):

$$-\frac{(i A+B-i C)\,(c-i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i d}}\right]}{(a-i b)^2\,f}-\frac{(B-i (A-C))\,(c+i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i d}}\right]}{(a+i b)^2\,f}+\frac{1}{b^{7/2}\left(a^2+b^2\right)^2 f}$$

$$(b c-a d)^{3/2}\left(3 a^3 b B d-5 a^4 C d-b^4 (2 B c+5 A d)-a b^3 (4 A c-4 c C-7 B d)+a^2 b^2 (2 B c-(A+9 C) d)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b c-a d}}\right]-$$

$$\frac{d\left(5 a^3 C d-A b^2 (b c-a d)-2 b^3 (2 c C+B d)-a^2 b (5 c C+3 B d)+a b^2 (B c+4 C d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{b^3\left(a^2+b^2\right) f}+$$

$$\frac{\left(3 A b^2-3 a b B+5 a^2 C+2 b^2 C\right) d\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3 b^2\left(a^2+b^2\right) f}-\frac{\left(A b^2-a (b B-a C)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{b\left(a^2+b^2\right) f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type ?, 1 794 028 leaves): Display of huge result suppressed!

Problem 109: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 3, 643 leaves, 14 steps):

$$-\frac{(A-i B-C)\,(c-i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i d}}\right]}{(i a+b)^3\,f}+\frac{(A+i B-C)\,(c+i d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i d}}\right]}{(i a-b)^3\,f}+\frac{1}{4 b^{7/2}\left(a^2+b^2\right)^3 f}\sqrt{b c-a d}$$

$$\left(3 a^5 b B d^2-15 a^6 C d^2+a^4 b^2 d (4 B c+(A-46 C) d)-3 a^2 b^4\left(8 A c^2-8 c^2 C-16 B c d-6 A d^2+21 C d^2\right)-a b^5\left(56 c (A-C) d+B\left(24 c^2-35 d^2\right)\right)-\right.$$

$$\left.b^6\left(4 c (2 c C+5 B d)-A\left(8 c^2-15 d^2\right)\right)+2 a^3 b^3\left(4 c (A-C) d+B\left(4 c^2+3 d^2\right)\right)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b c-a d}}\right]-\frac{1}{4 b^3\left(a^2+b^2\right)^2 f}$$

$$d\left(3 a^3 b B d-15 a^4 C d-a b^3 (8 A c-8 c C-11 B d)+a^2 b^2 (4 B c+(A-31 C) d)-b^4 (4 B c+7 A d+8 C d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+$$

$$\left(\left(a^3 b B d-5 a^4 C d-b^4 (4 B c+5 A d)-a b^3 (8 A c-8 c C-9 B d)+a^2 b^2 (4 B c+3 A d-13 C d)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\right)\Big/$$

$$\left(4 b^2\left(a^2+b^2\right)^2 f\,(a+b\,\mathrm{Tan}[e+f\,x])\right)-\frac{\left(A b^2-a (b B-a C)\right)(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{2 b\left(a^2+b^2\right) f\,(a+b\,\mathrm{Tan}[e+f\,x])^2}$$

Result (type ?, 2 422 718 leaves): Display of huge result suppressed!

Problem 114: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 210 leaves, 11 steps):

$$-\frac{(i\,A+B-i\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)\,\sqrt{c-i\,d}\,f}-\frac{(A+i\,B-C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(i\,a-b)\,\sqrt{c+i\,d}\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]}{\sqrt{b}\,\left(a^2+b^2\right)\,\sqrt{b\,c-a\,d}\,f}$$

Result (type ?, 262 476 leaves): Display of huge result suppressed!

Problem 115: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])^2\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 327 leaves, 12 steps):

$$-\frac{(i\,A+B-i\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,\sqrt{c-i\,d}\,f}-\frac{(B-i\,(A-C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,\sqrt{c+i\,d}\,f}-$$

$$\left(\left(3\,a^3\,b\,B\,d-a^4\,C\,d+b^4\,(2\,B\,c-A\,d)+a\,b^3\,(4\,A\,c-4\,c\,C-B\,d)-a^2\,b^2\,(2\,B\,c+5\,A\,d-3\,C\,d)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b\,c-a\,d}}\right]\right)\Big/$$

$$\left(\sqrt{b}\,\left(a^2+b^2\right)^2\,(b\,c-a\,d)^{3/2}\,f\right)-\frac{\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])}$$

Result (type ?, 847 076 leaves): Display of huge result suppressed!

Problem 116: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^3\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 511 leaves, 11 steps):

$$-\frac{(a-i b)^3 (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{3/2} f}-\frac{(i a-b)^3 (A+i B-C) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{3/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^3}{d \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}+$$

$$\frac{1}{15 d^4 \left(c^2+d^2\right) f}2 b \left(6 a^2 d^2 \left(12 c^2 C-5 B c d+(5 A+7 C) d^2\right)-15 a b d \left(8 c^3 C-6 B c^2 d+c (3 A+5 C) d^2-3 B d^3\right)+\right.$$

$$\left.b^2 \left(48 c^4 C-40 B c^3 d+6 c^2 (5 A+3 C) d^2-25 B c d^3+15 (A-C) d^4\right)\right) \sqrt{c+d \text{Tan}[e+f x]}-\frac{1}{15 d^3 \left(c^2+d^2\right) f}$$

$$2 b^2 \left(4 (b c-a d) \left(6 c^2 C-5 B c d+(5 A+C) d^2\right)-5 d^2 ((A-C) (b c-a d)+B (a c+b d))\right) \text{Tan}[e+f x] \sqrt{c+d \text{Tan}[e+f x]}+$$

$$\frac{2 b \left(6 c^2 C-5 B c d+(5 A+C) d^2\right) (a+b \text{Tan}[e+f x])^2 \sqrt{c+d \text{Tan}[e+f x]}}{5 d^2 \left(c^2+d^2\right) f}$$

Result (type 3, 1173 leaves) :

$$\frac{1}{f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,\text{Cos}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\,\Bigg(\frac{1}{15\,c\,(c-i\,d)\,(c+i\,d)\,d^4}$$

$$2\,\big(48\,b^3\,c^5\,C-40\,b^3\,B\,c^4\,d-120\,a\,b^2\,c^4\,C\,d+30\,A\,b^3\,c^3\,d^2+90\,a\,b^2\,B\,c^3\,d^2+90\,a^2\,b\,c^3\,C\,d^2+15\,b^3\,c^3\,C\,d^2-45\,a\,A\,b^2\,c^2\,d^3-45\,a^2\,b\,B\,c^2\,d^3-$$

$$25\,b^3\,B\,c^2\,d^3-15\,a^3\,c^2\,C\,d^3-75\,a\,b^2\,c^2\,C\,d^3+45\,a^2\,A\,b\,c\,d^4+15\,A\,b^3\,c\,d^4+15\,a^3\,B\,c\,d^4+45\,a\,b^2\,B\,c\,d^4+45\,a^2\,b\,c\,C\,d^4-18\,b^3\,c\,C\,d^4-15\,a^3\,A\,d^5\big)+$$

$$\frac{2\,b^3\,C\,\text{Sec}[e+f\,x]^2}{5\,d^2}+\frac{2\,\text{Sec}[e+f\,x]\,\big(-9\,b^3\,c\,C\,\text{Sin}[e+f\,x]+5\,b^3\,B\,d\,\text{Sin}[e+f\,x]+15\,a\,b^2\,C\,d\,\text{Sin}[e+f\,x]\big)}{15\,d^3}-$$

$$\frac{1}{c\,(c-i\,d)\,(c+i\,d)\,d^3\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])}\,2\,\big(b^3\,c^5\,C\,\text{Sin}[e+f\,x]-b^3\,B\,c^4\,d\,\text{Sin}[e+f\,x]-3\,a\,b^2\,c^4\,C\,d\,\text{Sin}[e+f\,x]+$$

$$A\,b^3\,c^3\,d^2\,\text{Sin}[e+f\,x]+3\,a\,b^2\,B\,c^3\,d^2\,\text{Sin}[e+f\,x]+3\,a^2\,b\,c^3\,C\,d^2\,\text{Sin}[e+f\,x]-3\,a\,A\,b^2\,c^2\,d^3\,\text{Sin}[e+f\,x]-$$

$$3\,a^2\,b\,B\,c^2\,d^3\,\text{Sin}[e+f\,x]-a^3\,c^2\,C\,d^3\,\text{Sin}[e+f\,x]+3\,a^2\,A\,b\,c\,d^4\,\text{Sin}[e+f\,x]+a^3\,B\,c\,d^4\,\text{Sin}[e+f\,x]-a^3\,A\,d^5\,\text{Sin}[e+f\,x]\big)\Bigg)$$

$$(a+b\,\text{Tan}[e+f\,x])^3+\Bigg((c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])^3$$

$$\Bigg(-\Bigg(i\,\big(a^3\,A\,c-3\,a\,A\,b^2\,c-3\,a^2\,b\,B\,c+b^3\,B\,c-a^3\,c\,C+3\,a\,b^2\,c\,C+3\,a^2\,A\,b\,d-A\,b^3\,d+a^3\,B\,d-3\,a\,b^2\,B\,d-3\,a^2\,b\,C\,d+b^3\,C\,d\big)$$

$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Bigg/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)-$$

$$\Bigg(\big(3\,a^2\,A\,b\,c-A\,b^3\,c+a^3\,B\,c-3\,a\,b^2\,B\,c-3\,a^2\,b\,c\,C+b^3\,c\,C-a^3\,A\,d+3\,a\,A\,b^2\,d+3\,a^2\,b\,B\,d-b^3\,B\,d+a^3\,C\,d-3\,a\,b^2\,C\,d\big)$$

$$\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\Bigg)\Bigg/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left((c-i\,d)\,(c+i\,d)\,f\,\text{Sec}[e+f\,x]^{3/2}\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])^3\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)$$

- **Problem 117: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\text{Tan}[e+f\,x])^2\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 343 leaves, 10 steps):

$$-\frac{(a-i b)^2 (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{3/2} f}-\frac{(a+i b)^2 (B-i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{3/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^2}{d \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}+$$
$$\frac{2 b \left(6 a d \left(2 c^2 C-B c d+(A+C) d^2\right)-b \left(8 c^3 C-6 B c^2 d+c (3 A+5 C) d^2-3 B d^3\right)\right) \sqrt{c+d \text{Tan}[e+f x]}}{3 d^3 \left(c^2+d^2\right) f}+$$
$$\frac{2 b^2 \left(4 c^2 C-3 B c d+(3 A+C) d^2\right) \text{Tan}[e+f x] \sqrt{c+d \text{Tan}[e+f x]}}{3 d^2 \left(c^2+d^2\right) f}$$

Result (type 3, 895 leaves) :

$$\frac{1}{f (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])^{3/2}}$$
$$(c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^2 (a+b \text{Tan}[e+f x])^2 \left(-\frac{1}{3 c (c-i d) (c+i d) d^3} 2 \left(8 b^2 c^4 C-6 b^2 B c^3 d-12 a b c^3 C d+\right.\right.$$
$$3 A b^2 c^2 d^2+6 a b B c^2 d^2+3 a^2 c^2 C d^2+5 b^2 c^2 C d^2-6 a A b c d^3-3 a^2 B c d^3-3 b^2 B c d^3-6 a b c C d^3+3 a^2 A d^4\Big)+$$
$$\Big(2 \left(b^2 c^4 C \text{Sin}[e+f x]-b^2 B c^3 d \text{Sin}[e+f x]-2 a b c^3 C d \text{Sin}[e+f x]+A b^2 c^2 d^2 \text{Sin}[e+f x]+2 a b B c^2 d^2 \text{Sin}[e+f x]+\right.$$
$$\left.a^2 c^2 C d^2 \text{Sin}[e+f x]-2 a A b c d^3 \text{Sin}[e+f x]-a^2 B c d^3 \text{Sin}[e+f x]+a^2 A d^4 \text{Sin}[e+f x]\right)\Big)\Big/$$
$$\left.\left(c (c-i d) (c+i d) d^2 (c \text{Cos}[e+f x]+d \text{Sin}[e+f x])\right)+\frac{2 b^2 C \text{Tan}[e+f x]}{3 d^2}\right)+$$
$$\left((c \text{Cos}[e+f x]+d \text{Sin}[e+f x])^{3/2} (a+b \text{Tan}[e+f x])^2 \left(-\left(i \left(a^2 A c-A b^2 c-2 a b B c-a^2 c C+b^2 c C+2 a A b d+a^2 B d-b^2 B d-2 a b C d\right)\right.\right.\right.$$
$$\left.\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right) \sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]} \sqrt{c \text{Cos}[e+f x]+d \text{Sin}[e+f x]}\right)-$$
$$\left(\left(2 a A b c+a^2 B c-b^2 B c-2 a b c C-a^2 A d+A b^2 d+2 a b B d+a^2 C d-b^2 C d\right) \left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d \text{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\right.$$
$$\left.\left.\left.\sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f x]} \sqrt{c \text{Cos}[e+f x]+d \text{Sin}[e+f x]}\right)\right)\right)\Big/$$
$$\left((c-i d) (c+i d) f \sqrt{\text{Sec}[e+f x]} (a \text{Cos}[e+f x]+b \text{Sin}[e+f x])^2 (c+d \text{Tan}[e+f x])^{3/2}\right)$$

Problem 118: Result more than twice size of optimal antiderivative.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(c+d\,\text{Tan}[e+f\,x])^{3/2}}\,dx$$

Optimal (type 3, 201 leaves, 9 steps):

$$-\frac{(i\,a+b)\,(A-i\,B-C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{(c-i\,d)^{3/2}\,f}+\frac{(i\,a-b)\,(A+i\,B-C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{(c+i\,d)^{3/2}\,f}+\frac{2\,(b\,c-a\,d)\left(c^2\,C-B\,c\,d+A\,d^2\right)}{d^2\left(c^2+d^2\right)f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}+\frac{2\,b\,C\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{d^2\,f}$$

Result (type 3, 684 leaves):

$$\Bigg(\text{Sec}[e+f\,x]\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^2\left(\frac{2\left(2\,b\,c^3\,C-b\,B\,c^2\,d-a\,c^2\,C\,d+A\,b\,c\,d^2+a\,B\,c\,d^2+b\,c\,C\,d^2-a\,A\,d^3\right)}{c\,(c-i\,d)\,(c+i\,d)\,d^2}-\left(2\left(b\,c^3\,C\,\text{Sin}[e+f\,x]-b\,B\,c^2\,d\,\text{Sin}[e+f\,x]-a\,c^2\,C\,d\,\text{Sin}[e+f\,x]+A\,b\,c\,d^2\,\text{Sin}[e+f\,x]+a\,B\,c\,d^2\,\text{Sin}[e+f\,x]-a\,A\,d^3\,\text{Sin}[e+f\,x]\right)\right)\Big/\left(c\,(c-i\,d)\,(c+i\,d)\,d\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])\right)\right)(a+b\,\text{Tan}[e+f\,x])\Bigg)\Big/\left(f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)+\Bigg(\sqrt{\text{Sec}[e+f\,x]}\,(c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x])^{3/2}\,(a+b\,\text{Tan}[e+f\,x])\left(-\left(i\,(a\,A\,c-b\,B\,c-a\,c\,C+A\,b\,d+a\,B\,d-b\,C\,d)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)-\left((A\,b\,c+a\,B\,c-b\,c\,C-a\,A\,d+b\,B\,d+a\,C\,d)\left(\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/\left(\sqrt{\text{Sec}[e+f\,x]}\,\sqrt{c\,\text{Cos}[e+f\,x]+d\,\text{Sin}[e+f\,x]}\right)\right)\Bigg)\Big/\left((c-i\,d)\,(c+i\,d)\,f\,(a\,\text{Cos}[e+f\,x]+b\,\text{Sin}[e+f\,x])\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)$$

Problem 119: Result more than twice size of optimal antiderivative.

$$\int \frac{A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2}{(c+d\,\mathrm{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 157 leaves, 8 steps):

$$-\frac{(i A+B-i C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{3/2} f}-\frac{(B-i (A-C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{3/2} f}-\frac{2\left(c^2 C-B c d+A d^2\right)}{d\left(c^2+d^2\right) f \sqrt{c+d\,\mathrm{Tan}[e+f x]}}$$

Result (type 3, 510 leaves):

$$\frac{\mathrm{Sec}[e+f x]^2\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^2\left(-\frac{2\left(c^2 C-B c d+A d^2\right)}{c d\,(-i c+d)\,(i c+d)}+\frac{2\left(c^2 C\,\mathrm{Sin}[e+f x]-B c d\,\mathrm{Sin}[e+f x]+A d^2\,\mathrm{Sin}[e+f x]\right)}{c\,(c-i d)\,(c+i d)\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])}\right)}{f\,(c+d\,\mathrm{Tan}[e+f x])^{3/2}}+$$

$$\left(\mathrm{Sec}[e+f x]^{3/2}\,(c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x])^{3/2}\left(-\frac{i\,(A c-c C+B d)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{\mathrm{Sec}[e+f x]}\,\sqrt{c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]}}-\right.\right.$$

$$\left.\left.\frac{(B c-A d+C d)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{\sqrt{c-i d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{\sqrt{c+i d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{\mathrm{Sec}[e+f x]}\,\sqrt{c\,\mathrm{Cos}[e+f x]+d\,\mathrm{Sin}[e+f x]}}\right)\right)\Big/\left((c-i d)\,(c+i d)\,f\,(c+d\,\mathrm{Tan}[e+f x])^{3/2}\right)$$

Problem 120: Humongous result has more than 200000 leaves.

$$\int \frac{A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2}{(a+b\,\mathrm{Tan}[e+f x])\,(c+d\,\mathrm{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 262 leaves, 12 steps):

$$\frac{(A-i B-C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(i a+b)\,(c-i d)^{3/2} f}+\frac{(i A-B-i C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a+i b)\,(c+i d)^{3/2} f}-$$

$$\frac{2\sqrt{b}\,\left(A b^2-a\,(b B-a C)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{b c-a d}}\right]}{\left(a^2+b^2\right)(b c-a d)^{3/2} f}+\frac{2\left(c^2 C-B c d+A d^2\right)}{(b c-a d)\left(c^2+d^2\right) f \sqrt{c+d\,\mathrm{Tan}[e+f x]}}$$

Result (type ?, 659 327 leaves) : Display of huge result suppressed!

Problem 121: Humongous result has more than 200000 leaves.

$$\int \frac{A + B\,\mathrm{Tan}[e + f x] + C\,\mathrm{Tan}[e + f x]^2}{(a + b\,\mathrm{Tan}[e + f x])^2\,(c + d\,\mathrm{Tan}[e + f x])^{3/2}}\,dx$$

Optimal (type 3, 447 leaves, 13 steps) :

$$-\frac{(i A + B - i C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(a - i b)^2\,(c - i d)^{3/2} f} - \frac{(B - i (A - C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(a + i b)^2\,(c + i d)^{3/2} f} - \frac{1}{(a^2 + b^2)^2\,(b c - a d)^{5/2} f}$$
$$\sqrt{b}\,\left(5 a^3 b B d - 3 a^4 C d + b^4 (2 B c - 3 A d) + a b^3 (4 A c - 4 c C + B d) - a^2 b^2 (2 B c + (7 A - C) d)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c + d\,\mathrm{Tan}[e + f x]}}{\sqrt{b c - a d}}\right] -$$
$$\frac{d\,\left(2 b^2 c\,(c C - B d) - a b B\,(c^2 + d^2) + a^2\,(3 c^2 C - 2 B c d + C d^2) + A\,(2 a^2 d^2 + b^2\,(c^2 + 3 d^2))\right)}{(a^2 + b^2)\,(b c - a d)^2\,(c^2 + d^2)\,f\,\sqrt{c + d\,\mathrm{Tan}[e + f x]}} -$$
$$\frac{A b^2 - a\,(b B - a C)}{(a^2 + b^2)\,(b c - a d)\,f\,(a + b\,\mathrm{Tan}[e + f x])\,\sqrt{c + d\,\mathrm{Tan}[e + f x]}}$$

Result (type ?, 1 833 889 leaves) : Display of huge result suppressed!

Problem 122: Result more than twice size of optimal antiderivative.

$$\int \frac{(a + b\,\mathrm{Tan}[e + f x])^3\,\left(A + B\,\mathrm{Tan}[e + f x] + C\,\mathrm{Tan}[e + f x]^2\right)}{(c + d\,\mathrm{Tan}[e + f x])^{5/2}}\,dx$$

Optimal (type 3, 585 leaves, 11 steps) :

$$-\frac{(a - i b)^3\,(i A + B - i C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c - i d)^{5/2} f} - \frac{(i a - b)^3\,(A + i B - C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c + i d)^{5/2} f} - \frac{2\,(c^2 C - B c d + A d^2)\,(a + b\,\mathrm{Tan}[e + f x])^3}{3 d\,(c^2 + d^2)\,f\,(c + d\,\mathrm{Tan}[e + f x])^{3/2}} -$$
$$\frac{2\,\left(b\,(2 c^4 C - B c^3 d + 4 c^2 C d^2 - 3 B c d^3 + 2 A d^4) + a d^2\,(2 c\,(A - C)\,d - B\,(c^2 - d^2))\right)\,(a + b\,\mathrm{Tan}[e + f x])^2}{d^2\,(c^2 + d^2)^2\,f\,\sqrt{c + d\,\mathrm{Tan}[e + f x]}} + \frac{1}{3 d^4\,(c^2 + d^2)^2 f}$$
$$2 b\,\left(3 a b d\,(8 c^4 C - 2 B c^3 d - c^2 (A - 17 C) d^2 - 8 B c d^3 + (5 A + 3 C) d^4) - b^2\,(16 c^5 C - 8 B c^4 d + 2 c^3 (A + 15 C) d^2 - 17 B c^2 d^3 + 8 c (A + C) d^4 - 3 B d^5) +\right.$$
$$\left.6 a^2 d^3\,(2 c\,(A - C)\,d - B\,(c^2 - d^2))\right)\,\sqrt{c + d\,\mathrm{Tan}[e + f x]} + \frac{1}{3 d^3\,(c^2 + d^2)^2 f}$$
$$2 b^2\,\left(b\,(8 c^4 C - 4 B c^3 d + c^2 (A + 15 C) d^2 - 10 B c d^3 + (7 A + C) d^4) + 3 a d^2\,(2 c\,(A - C)\,d - B\,(c^2 - d^2))\right)\,\mathrm{Tan}[e + f x]\,\sqrt{c + d\,\mathrm{Tan}[e + f x]}$$

Result (type 3, 1617 leaves) :

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\,(a+b\,\mathrm{Tan}[e+f\,x])^3$$

$$\Bigg(-\frac{1}{3\,c\,(c-i\,d)^2\,(c+i\,d)^2\,d^4}\,2\,\big(16\,b^3\,c^6\,C-8\,b^3\,B\,c^5\,d-24\,a\,b^2\,c^5\,C\,d+2\,A\,b^3\,c^4\,d^2+6\,a\,b^2\,B\,c^4\,d^2+6\,a^2\,b\,c^4\,C\,d^2+31\,b^3\,c^4\,C\,d^2+3\,a\,A\,b^2\,c^3\,d^3+$$

$$3\,a^2\,b\,B\,c^3\,d^3-18\,b^3\,B\,c^3\,d^3+a^3\,c^3\,C\,d^3-54\,a\,b^2\,c^3\,C\,d^3-12\,a^2\,A\,b\,c^2\,d^4+9\,A\,b^3\,c^2\,d^4-4\,a^3\,B\,c^2\,d^4+27\,a\,b^2\,B\,c^2\,d^4+27\,a^2\,b\,c^2\,C\,d^4+$$

$$8\,b^3\,c^2\,C\,d^4+7\,a^3\,A\,c\,d^5-18\,a\,A\,b^2\,c\,d^5-18\,a^2\,b\,B\,c\,d^5-3\,b^3\,B\,c\,d^5-6\,a^3\,c\,C\,d^5-9\,a\,b^2\,c\,C\,d^5+9\,a^2\,A\,b\,d^6+3\,a^3\,B\,d^6\big)+$$

$$\frac{2\,(b\,c-a\,d)^3\,\big(c^2\,C-B\,c\,d+A\,d^2\big)}{3\,(c-i\,d)^2\,(c+i\,d)^2\,d^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}+\frac{1}{3\,c\,(c-i\,d)^2\,(c+i\,d)^2\,d^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$

$$2\,\big(7\,b^3\,c^6\,C\,\mathrm{Sin}[e+f\,x]-4\,b^3\,B\,c^5\,d\,\mathrm{Sin}[e+f\,x]-12\,a\,b^2\,c^5\,C\,d\,\mathrm{Sin}[e+f\,x]+A\,b^3\,c^4\,d^2\,\mathrm{Sin}[e+f\,x]+3\,a\,b^2\,B\,c^4\,d^2\,\mathrm{Sin}[e+f\,x]+$$

$$3\,a^2\,b\,c^4\,C\,d^2\,\mathrm{Sin}[e+f\,x]+15\,b^3\,c^4\,C\,d^2\,\mathrm{Sin}[e+f\,x]+6\,a\,A\,b^2\,c^3\,d^3\,\mathrm{Sin}[e+f\,x]+6\,a^2\,b\,B\,c^3\,d^3\,\mathrm{Sin}[e+f\,x]-12\,b^3\,B\,c^3\,d^3\,\mathrm{Sin}[e+f\,x]+$$

$$2\,a^3\,c^3\,C\,d^3\,\mathrm{Sin}[e+f\,x]-36\,a\,b^2\,c^3\,C\,d^3\,\mathrm{Sin}[e+f\,x]-15\,a^2\,A\,b\,c^2\,d^4\,\mathrm{Sin}[e+f\,x]+9\,A\,b^3\,c^2\,d^4\,\mathrm{Sin}[e+f\,x]-5\,a^3\,B\,c^2\,d^4\,\mathrm{Sin}[e+f\,x]+$$

$$27\,a\,b^2\,B\,c^2\,d^4\,\mathrm{Sin}[e+f\,x]+27\,a^2\,b\,c^2\,C\,d^4\,\mathrm{Sin}[e+f\,x]+8\,a^3\,A\,c\,d^5\,\mathrm{Sin}[e+f\,x]-18\,a\,A\,b^2\,c\,d^5\,\mathrm{Sin}[e+f\,x]-$$

$$18\,a^2\,b\,B\,c\,d^5\,\mathrm{Sin}[e+f\,x]-6\,a^3\,c\,C\,d^5\,\mathrm{Sin}[e+f\,x]+9\,a^2\,A\,b\,d^6\,\mathrm{Sin}[e+f\,x]+3\,a^3\,B\,d^6\,\mathrm{Sin}[e+f\,x]\big)+\frac{2\,b^3\,C\,\mathrm{Tan}[e+f\,x]}{3\,d^3}\Bigg)+$$

$$\Bigg((c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f\,x])^3\,\Bigg(-\Bigg(i\,\big(a^3\,A\,c^2-3\,a\,A\,b^2\,c^2-3\,a^2\,b\,B\,c^2+b^3\,B\,c^2-a^3\,c^2\,C+3\,a\,b^2\,c^2\,C+6\,a^2\,A\,b\,c\,d-$$

$$2\,A\,b^3\,c\,d+2\,a^3\,B\,c\,d-6\,a\,b^2\,B\,c\,d-6\,a^2\,b\,c\,C\,d+2\,b^3\,c\,C\,d-a^3\,A\,d^2+3\,a\,A\,b^2\,d^2+3\,a^2\,b\,B\,d^2-b^3\,B\,d^2+a^3\,C\,d^2-3\,a\,b^2\,C\,d^2\big)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)-$$

$$\Bigg(\big(3\,a^2\,A\,b\,c^2-A\,b^3\,c^2+a^3\,B\,c^2-3\,a\,b^2\,B\,c^2-3\,a^2\,b\,c^2\,C+b^3\,c^2\,C-2\,a^3\,A\,c\,d+6\,a\,A\,b^2\,c\,d+6\,a^2\,b\,B\,c\,d-2\,b^3\,B\,c\,d+$$

$$2\,a^3\,c\,C\,d-6\,a\,b^2\,c\,C\,d-3\,a^2\,A\,b\,d^2+A\,b^3\,d^2-a^3\,B\,d^2+3\,a\,b^2\,B\,d^2+3\,a^2\,b\,C\,d^2-b^3\,C\,d^2\big)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Big/$$

$$\left((c-i\,d)^2\,(c+i\,d)^2\,f\,\sqrt{\mathrm{Sec}[e+f\,x]}\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^3\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\right)$$

- **Problem 123: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])^2\,\big(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\big)}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 358 leaves, 10 steps) :

$$-\frac{(a-\mathrm{i}\,b)^2\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{(c-\mathrm{i}\,d)^{5/2}\,f}-\frac{(a+\mathrm{i}\,b)^2\,(B-\mathrm{i}\,(A-C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{(c+\mathrm{i}\,d)^{5/2}\,f}-$$

$$\frac{2\left(c^2\,C-B\,c\,d+A\,d^2\right)(a+b\,\mathrm{Tan}[e+f\,x])^2}{3\,d\left(c^2+d^2\right)f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}+\frac{2\,(b\,c-a\,d)\left(b\left(4\,c^4\,C-B\,c^3\,d-2\,c^2\,(A-5\,C)\,d^2-7\,B\,c\,d^3+4\,A\,d^4\right)+3\,a\,d^2\left(2\,c\,(A-C)\,d-B\left(c^2-d^2\right)\right)\right)}{3\,d^3\left(c^2+d^2\right)^2f\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}+$$

$$\frac{2\,b^2\left(4\,c^2\,C-B\,c\,d+(A+3\,C)\,d^2\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{3\,d^3\left(c^2+d^2\right)f}$$

Result (type 3, 1262 leaves) :

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,\mathrm{Sec}[e+f\,x]\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3$$

$$\Big(-\big(2\,(-8\,b^2\,c^5\,C+2\,b^2\,B\,c^4\,d+4\,a\,b\,c^4\,C\,d+A\,b^2\,c^3\,d^2+2\,a\,b\,B\,c^3\,d^2+a^2\,c^3\,C\,d^2-18\,b^2\,c^3\,C\,d^2-8\,a\,A\,b\,c^2\,d^3-4\,a^2\,B\,c^2\,d^3+9\,b^2\,B\,c^2\,d^3+18\,a\,b\,c^2\,C\,d^3+$$
$$7\,a^2\,A\,c\,d^4-6\,A\,b^2\,c\,d^4-12\,a\,b\,B\,c\,d^4-6\,a^2\,c\,C\,d^4-3\,b^2\,c\,C\,d^4+6\,a\,A\,b\,d^5+3\,a^2\,B\,d^5)\big)\Big/\big(3\,c\,(c-i\,d)^2\,(c+i\,d)^2\,d^3\big)-$$
$$\frac{2\,(b\,c-a\,d)^2\,(c^2\,C-B\,c\,d+A\,d^2)}{3\,(c-i\,d)^2\,(c+i\,d)^2\,d\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}-\frac{1}{3\,c\,(c-i\,d)^2\,(c+i\,d)^2\,d^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])}$$
$$2\,(4\,b^2\,c^5\,C\,\mathrm{Sin}[e+f\,x]-b^2\,B\,c^4\,d\,\mathrm{Sin}[e+f\,x]-2\,a\,b\,c^4\,C\,d\,\mathrm{Sin}[e+f\,x]-2\,A\,b^2\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]-4\,a\,b\,B\,c^3\,d^2\,\mathrm{Sin}[e+f\,x]-$$
$$2\,a^2\,c^3\,C\,d^2\,\mathrm{Sin}[e+f\,x]+12\,b^2\,c^3\,C\,d^2\,\mathrm{Sin}[e+f\,x]+10\,a\,A\,b\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]+5\,a^2\,B\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-$$
$$9\,b^2\,B\,c^2\,d^3\,\mathrm{Sin}[e+f\,x]-18\,a\,b\,c^2\,C\,d^3\,\mathrm{Sin}[e+f\,x]-8\,a^2\,A\,c\,d^4\,\mathrm{Sin}[e+f\,x]+6\,A\,b^2\,c\,d^4\,\mathrm{Sin}[e+f\,x]+$$
$$12\,a\,b\,B\,c\,d^4\,\mathrm{Sin}[e+f\,x]+6\,a^2\,c\,C\,d^4\,\mathrm{Sin}[e+f\,x]-6\,a\,A\,b\,d^5\,\mathrm{Sin}[e+f\,x]-3\,a^2\,B\,d^5\,\mathrm{Sin}[e+f\,x])\Big)$$

$$(a+b\,\mathrm{Tan}[e+f\,x])^2+\Big(\sqrt{\mathrm{Sec}[e+f\,x]}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f\,x])^2$$

$$\Big(-\Big(i\,(a^2\,A\,c^2-A\,b^2\,c^2-2\,a\,b\,B\,c^2-a^2\,c^2\,C+b^2\,c^2\,C+4\,a\,A\,b\,c\,d+2\,a^2\,B\,c\,d-2\,b^2\,B\,c\,d-4\,a\,b\,c\,C\,d-a^2\,A\,d^2+A\,b^2\,d^2+2\,a\,b\,B\,d^2+a^2\,C\,d^2-b^2\,C\,d^2)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Big)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)-$$

$$\Big((2\,a\,A\,b\,c^2+a^2\,B\,c^2-b^2\,B\,c^2-2\,a\,b\,c^2\,C-2\,a^2\,A\,c\,d+2\,A\,b^2\,c\,d+4\,a\,b\,B\,c\,d+2\,a^2\,c\,C\,d-2\,b^2\,c\,C\,d-2\,a\,A\,b\,d^2-a^2\,B\,d^2+b^2\,B\,d^2+2\,a\,b\,C\,d^2)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-i\,d}}\right]}{\sqrt{c-i\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+i\,d}}\right]}{\sqrt{c+i\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Big)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)\Big)\Big)\Big/$$

$$\left((c-i\,d)^2\,(c+i\,d)^2\,f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])^2\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\right)$$

- **Problem 124: Result more than twice size of optimal antiderivative.**

$$\int\frac{(a+b\,\mathrm{Tan}[e+f\,x])\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 273 leaves, 9 steps) :

$$-\frac{(a-i b)(i A+B-i C)\operatorname{ArcTanh}\left[\frac{\sqrt{c+d\operatorname{Tan}[e+f x]}}{\sqrt{c-i d}}\right]}{(c-i d)^{5/2} f}+\frac{(i a-b)(A+i B-C)\operatorname{ArcTanh}\left[\frac{\sqrt{c+d\operatorname{Tan}[e+f x]}}{\sqrt{c+i d}}\right]}{(c+i d)^{5/2} f}+$$
$$\frac{2(b c-a d)\left(c^2 C-B c d+A d^2\right)}{3 d^2\left(c^2+d^2\right) f(c+d\operatorname{Tan}[e+f x])^{3/2}}-\frac{2\left(b\left(c^4 C-c^2(A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2\left(2 c(A-C) d-B\left(c^2-d^2\right)\right)\right)}{d^2\left(c^2+d^2\right)^2 f\sqrt{c+d\operatorname{Tan}[e+f x]}}$$

Result (type 3, 931 leaves) :

$$\frac{1}{f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,\mathrm{Sec}[e+f\,x]^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3$$

$$\Big(-\big(2\,(2\,b\,c^4\,C+b\,B\,c^3\,d+a\,c^3\,C\,d-4\,A\,b\,c^2\,d^2-4\,a\,B\,c^2\,d^2+9\,b\,c^2\,C\,d^2+7\,a\,A\,c\,d^3-6\,b\,B\,c\,d^3-6\,a\,c\,C\,d^3+3\,A\,b\,d^4+3\,a\,B\,d^4)\big)\Big/$$

$$\left(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d^2\right)+\frac{2\,(b\,c-a\,d)\,\left(c^2\,C-B\,c\,d+A\,d^2\right)}{3\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}+$$

$$\big(2\,(b\,c^4\,C\,\mathrm{Sin}[e+f\,x]+2\,b\,B\,c^3\,d\,\mathrm{Sin}[e+f\,x]+2\,a\,c^3\,C\,d\,\mathrm{Sin}[e+f\,x]-5\,A\,b\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]-5\,a\,B\,c^2\,d^2\,\mathrm{Sin}[e+f\,x]+9\,b\,c^2\,C\,d^2\,\mathrm{Sin}[e+f\,x]+$$

$$8\,a\,A\,c\,d^3\,\mathrm{Sin}[e+f\,x]-6\,b\,B\,c\,d^3\,\mathrm{Sin}[e+f\,x]-6\,a\,c\,C\,d^3\,\mathrm{Sin}[e+f\,x]+3\,A\,b\,d^4\,\mathrm{Sin}[e+f\,x]+3\,a\,B\,d^4\,\mathrm{Sin}[e+f\,x])\big)\Big/$$

$$\left(3\,c\,(c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,d\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\right)\Big)\,(a+b\,\mathrm{Tan}[e+f\,x])+$$

$$\Bigg(\mathrm{Sec}[e+f\,x]^{3/2}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\,(a+b\,\mathrm{Tan}[e+f\,x])$$

$$\Bigg(-\Bigg(\mathrm{i}\,\left(a\,A\,c^2-b\,B\,c^2-a\,c^2\,C+2\,A\,b\,c\,d+2\,a\,B\,c\,d-2\,b\,c\,C\,d-a\,A\,d^2+b\,B\,d^2+a\,C\,d^2\right)$$

$$\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Bigg/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)-$$

$$\Bigg(\left(A\,b\,c^2+a\,B\,c^2-b\,c^2\,C-2\,a\,A\,c\,d+2\,b\,B\,c\,d+2\,a\,c\,C\,d-A\,b\,d^2-a\,B\,d^2+b\,C\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}\,d}}\right]}{\sqrt{c-\mathrm{i}\,d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}\,d}}\right]}{\sqrt{c+\mathrm{i}\,d}}\right)$$

$$\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\Bigg)\Bigg/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)\Bigg)\Bigg)\Bigg/$$

$$\left((c-\mathrm{i}\,d)^2\,(c+\mathrm{i}\,d)^2\,f\,(a\,\mathrm{Cos}[e+f\,x]+b\,\mathrm{Sin}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\right)$$

- **Problem 125: Result more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 209 leaves, 9 steps) :

$$-\frac{(\mathrm{i}A+B-\mathrm{i}C)\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}d}}\right]}{(c-\mathrm{i}d)^{5/2}f}-\frac{(B-\mathrm{i}(A-C))\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}d}}\right]}{(c+\mathrm{i}d)^{5/2}f}-\frac{2\left(c^2C-B\,c\,d+A\,d^2\right)}{3d\left(c^2+d^2\right)f\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}-\frac{2\left(2c\,(A-C)\,d-B\left(c^2-d^2\right)\right)}{\left(c^2+d^2\right)^2f\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}$$

Result (type 3, 647 leaves) :

$$\frac{1}{f\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\mathrm{Sec}[e+f\,x]^3\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^3\left(-\frac{2\left(c^3C-4B\,c^2d+7A\,c\,d^2-6c\,C\,d^2+3B\,d^3\right)}{3c\,(c-\mathrm{i}d)^2\,(c+\mathrm{i}d)^2\,d}-\frac{2d\left(c^2C-B\,c\,d+A\,d^2\right)}{3\,(c-\mathrm{i}d)^2\,(c+\mathrm{i}d)^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^2}+\left(2\left(2c^3C\,\mathrm{Sin}[e+f\,x]-5B\,c^2d\,\mathrm{Sin}[e+f\,x]+8A\,c\,d^2\,\mathrm{Sin}[e+f\,x]-6c\,C\,d^2\,\mathrm{Sin}[e+f\,x]+3B\,d^3\,\mathrm{Sin}[e+f\,x]\right)\right)\Big/\left(3c\,(c-\mathrm{i}d)^2\,(c+\mathrm{i}d)^2\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])\right)\right)+$$

$$\left(\mathrm{Sec}[e+f\,x]^{5/2}\,(c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x])^{5/2}\left(-\left(\mathrm{i}\left(A\,c^2-c^2C+2B\,c\,d-A\,d^2+C\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}d}}\right]}{\sqrt{c-\mathrm{i}d}}-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}d}}\right]}{\sqrt{c+\mathrm{i}d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\Big/\left(\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}\right)-\frac{\left(B\,c^2-2A\,c\,d+2c\,C\,d-B\,d^2\right)\left(\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c-\mathrm{i}d}}\right]}{\sqrt{c-\mathrm{i}d}}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{c+\mathrm{i}d}}\right]}{\sqrt{c+\mathrm{i}d}}\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{\sqrt{\mathrm{Sec}[e+f\,x]}\,\sqrt{c\,\mathrm{Cos}[e+f\,x]+d\,\mathrm{Sin}[e+f\,x]}}\right)\right)\Big/\left((c-\mathrm{i}d)^2\,(c+\mathrm{i}d)^2\,f\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\right)$$

- **Problem 126: Humongous result has more than 200000 leaves.**

$$\int\frac{A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2}{(a+b\,\mathrm{Tan}[e+f\,x])\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 365 leaves, 13 steps) :

$$\frac{(A-iB-C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-i\,d}}\right]}{(i\,a+b)\,(c-i\,d)^{5/2}\,f}+\frac{(i\,A-B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)\,(c+i\,d)^{5/2}\,f}-\frac{2\,b^{3/2}\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{b\,c-a\,d}}\right]}{\left(a^2+b^2\right)\,(b\,c-a\,d)^{5/2}\,f}+$$
$$\frac{2\,\left(c^2\,C-B\,c\,d+A\,d^2\right)}{3\,(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+fx])^{3/2}}+\frac{2\,\left(b\,\left(c^4\,C-2\,B\,c^3\,d+c^2\,(3\,A-C)\,d^2+A\,d^4\right)-a\,d^2\,\left(2\,c\,(A-C)\,d-B\,\left(c^2-d^2\right)\right)\right)}{(b\,c-a\,d)^2\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\text{Tan}[e+fx]}}$$

Result (type ?, 1 191 755 leaves) : Display of huge result suppressed!

Problem 127: Humongous result has more than 200000 leaves.

$$\int\frac{A+B\,\text{Tan}[e+fx]+C\,\text{Tan}[e+fx]^2}{(a+b\,\text{Tan}[e+fx])^2\,(c+d\,\text{Tan}[e+fx])^{5/2}}\,dx$$

Optimal (type 3, 679 leaves, 14 steps) :

$$-\frac{(i\,A+B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c-i\,d}}\right]}{(a-i\,b)^2\,(c-i\,d)^{5/2}\,f}-\frac{(B-i\,(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{c+i\,d}}\right]}{(a+i\,b)^2\,(c+i\,d)^{5/2}\,f}-\frac{1}{\left(a^2+b^2\right)^2\,(b\,c-a\,d)^{7/2}\,f}$$
$$b^{3/2}\,\left(7\,a^3\,b\,B\,d-5\,a^4\,C\,d+b^4\,(2\,B\,c-5\,A\,d)+a\,b^3\,(4\,A\,c-4\,c\,C+3\,B\,d)-a^2\,b^2\,(2\,B\,c+(9\,A+C)\,d)\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+fx]}}{\sqrt{b\,c-a\,d}}\right]-$$
$$\frac{d\,\left(2\,b^2\,c\,(c\,C-B\,d)-3\,a\,b\,B\,\left(c^2+d^2\right)+a^2\,\left(5\,c^2\,C-2\,B\,c\,d+3\,C\,d^2\right)+A\,\left(2\,a^2\,d^2+b^2\,\left(3\,c^2+5\,d^2\right)\right)\right)}{3\,\left(a^2+b^2\right)\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+fx])^{3/2}}-$$
$$\frac{A\,b^2-a\,(b\,B-a\,C)}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+fx])\,(c+d\,\text{Tan}[e+fx])^{3/2}}-$$
$$\left(d\,\left(2\,a^3\,d^2\,\left(B\,c^2+2\,c\,C\,d-B\,d^2\right)+2\,b^3\,c\,\left(2\,c^3\,C-3\,B\,c^2\,d-B\,d^3\right)-a\,b^2\,\left(B\,c^4-4\,c\,C\,d^3+3\,B\,d^4\right)+a^2\,b\,\left(5\,c^4\,C-6\,B\,c^3\,d+2\,c^2\,C\,d^2-2\,B\,c\,d^3+C\,d^4\right)-\right.\right.$$
$$\left.\left.A\,\left(4\,a^3\,c\,d^3+4\,a\,b^2\,c\,d^3-4\,a^2\,b\,d^2\,\left(2\,c^2+d^2\right)-b^3\,\left(c^4+10\,c^2\,d^2+5\,d^4\right)\right)\right)\right)\Big/\left(\left(a^2+b^2\right)\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\text{Tan}[e+fx]}\right)$$

Result (type ?, 1 369 492 leaves) : Display of huge result suppressed!

Problem 128: Humongous result has more than 200000 leaves.

$$\int(a+b\,\text{Tan}[e+fx])^{5/2}\,\sqrt{c+d\,\text{Tan}[e+fx]}\,\left(A+B\,\text{Tan}[e+fx]+C\,\text{Tan}[e+fx]^2\right)\,dx$$

Optimal (type 3, 679 leaves, 16 steps) :

$$-\frac{(a-\mathrm{i}\,b)^{5/2}\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\sqrt{c-\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}-\frac{(a+\mathrm{i}\,b)^{5/2}\,(B-\mathrm{i}\,(A-C))\,\sqrt{c+\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}-$$

$$\frac{1}{64\,b^{3/2}\,d^{7/2}\,f}\Big(5\,a^4\,C\,d^4-20\,a^3\,b\,d^3\,(c\,C+2\,B\,d)+30\,a^2\,b^2\,d^2\,\left(c^2\,C-4\,B\,c\,d-8\,(A-C)\,d^2\right)-20\,a\,b^3\,d\,\left(c^3\,C-2\,B\,c^2\,d+8\,c\,(A-C)\,d^2-16\,B\,d^3\right)+$$

$$b^4\,\left(5\,c^4\,C-8\,B\,c^3\,d+16\,c^2\,(A-C)\,d^2+64\,B\,c\,d^3+128\,(A-C)\,d^4\right)\Big)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]+\frac{1}{64\,b\,d^3\,f}$$

$$\left(64\,b\,\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)\,d^3-(b\,c-a\,d)\,\left(16\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\right)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}$$

$$\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+\frac{\left(16\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{32\,d^3\,f}-$$

$$\frac{(5\,b\,c\,C-8\,b\,B\,d-5\,a\,C\,d)\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{24\,d^2\,f}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{4\,d\,f}$$

Result (type ?, 1631220 leaves): Display of huge result suppressed!

- **Problem 129: Humongous result has more than 200000 leaves.**

$$\int(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 505 leaves, 15 steps):

$$-\frac{(a-\mathrm{i}\,b)^{3/2}\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\sqrt{c-\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}+\frac{(a+\mathrm{i}\,b)^{3/2}\,(\mathrm{i}\,A-B-\mathrm{i}\,C)\,\sqrt{c+\mathrm{i}\,d}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{f}-$$

$$\frac{1}{8\,b^{3/2}\,d^{5/2}\,f}\left(a^3\,C\,d^3-3\,a^2\,b\,d^2\,(c\,C+2\,B\,d)+3\,a\,b^2\,d\,\left(c^2\,C-4\,B\,c\,d-8\,(A-C)\,d^2\right)-b^3\,\left(c^3\,C-2\,B\,c^2\,d+8\,c\,(A-C)\,d^2-16\,B\,d^3\right)\right)$$

$$\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]+\frac{\left(8\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(b\,c\,C-2\,b\,B\,d-a\,C\,d)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{8\,b\,d^2\,f}-$$

$$\frac{(b\,c\,C-2\,b\,B\,d-a\,C\,d)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{4\,d^2\,f}+\frac{C\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,d\,f}$$

Result (type ?, 1131613 leaves): Display of huge result suppressed!

- **Problem 130: Humongous result has more than 200000 leaves.**

$$\int\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 381 leaves, 14 steps):

$$-\frac{\sqrt{a-i b}\,(i A+B-i C)\sqrt{c-i d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}-\frac{\sqrt{a+i b}\,(B-i(A-C))\sqrt{c+i d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}-$$
$$\frac{\left(a^2 C d^2-2 a b d(c C+2 B d)+b^2\left(c^2 C-4 B c d-8(A-C) d^2\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{4 b^{3/2} d^{3/2} f}-$$
$$\frac{(b c C-4 b B d-a C d)\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{4 b d f}+\frac{C\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}{2 d f}$$

Result (type ?, 697 653 leaves) : Display of huge result suppressed!

- **Problem 131: Humongous result has more than 200000 leaves.**

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f x]}\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{\sqrt{a+b\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 287 leaves, 13 steps) :

$$-\frac{(i A+B-i C)\sqrt{c-i d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,f}-\frac{(B-i(A-C))\sqrt{c+i d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,f}+$$
$$\frac{(b c C+2 b B d-a C d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{b^{3/2}\sqrt{d}\,f}+\frac{C\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{b f}$$

Result (type ?, 332 624 leaves) : Display of huge result suppressed!

- **Problem 132: Humongous result has more than 200000 leaves.**

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f x]}\,\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(a+b\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 300 leaves, 13 steps) :

$$-\frac{(i A+B-i C)\sqrt{c-i d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{3/2} f}-\frac{(B-i(A-C))\sqrt{c+i d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{3/2} f}+$$
$$\frac{2 C\sqrt{d}\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{b^{3/2} f}-\frac{2\left(A b^2-a(b B-a C)\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{b\left(a^2+b^2\right) f\sqrt{a+b\,\text{Tan}[e+f x]}}$$

Result (type ?, 621 058 leaves) : Display of huge result suppressed!

Problem 133: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 370 leaves, 9 steps):

$$-\frac{(i\,A+B-i\,C)\,\sqrt{c-i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{5/2}\,f}-$$

$$\frac{(B-i\,(A-C))\,\sqrt{c+i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{5/2}\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^{3/2}}-$$

$$\left(2\,\left(2\,a^3\,b\,B\,d+a^4\,C\,d+b^4\,(3\,B\,c+A\,d)+2\,a\,b^3\,(3\,A\,c-3\,c\,C-2\,B\,d)-a^2\,b^2\,(3\,B\,c+5\,A\,d-7\,C\,d)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/$$
$$\left(3\,b\,\left(a^2+b^2\right)^2\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\right)$$

Result (type ?, 815 411 leaves): Display of huge result suppressed!

Problem 134: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{c+d\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{(a+b\,\text{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 597 leaves, 10 steps):

$$-\frac{(i\,A+B-i\,C)\,\sqrt{c-i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-i\,b)^{7/2}\,f}-$$

$$\frac{(B-i\,(A-C))\,\sqrt{c+i\,d}\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+i\,b)^{7/2}\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{5\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\text{Tan}[e+f\,x])^{5/2}}-$$

$$\left(2\,\left(4\,a^3\,b\,B\,d+a^4\,C\,d+b^4\,(5\,B\,c+A\,d)+2\,a\,b^3\,(5\,A\,c-5\,c\,C-3\,B\,d)-a^2\,b^2\,(5\,B\,c+9\,A\,d-11\,C\,d)\right)\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/$$
$$\left(15\,b\,\left(a^2+b^2\right)^2\,(b\,c-a\,d)\,f\,(a+b\,\text{Tan}[e+f\,x])^{3/2}\right)+$$
$$\left(2\,\left(8\,a^5\,b\,B\,d^2+2\,a^6\,C\,d^2-a^4\,b^2\,d\,(25\,B\,c+33\,A\,d-39\,C\,d)-a^2\,b^4\,\left(45\,A\,c^2-45\,c^2\,C-90\,B\,c\,d-29\,A\,d^2+23\,C\,d^2\right)+\right.\right.$$
$$\left.a^3\,b^3\,\left(80\,c\,(A-C)\,d+B\,\left(15\,c^2-49\,d^2\right)\right)-a\,b^5\,\left(40\,c\,(A-C)\,d+B\,\left(45\,c^2-3\,d^2\right)\right)-b^6\,\left(5\,c\,(3\,c\,C+B\,d)-A\,\left(15\,c^2+2\,d^2\right)\right)\right)$$
$$\left.\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)\Big/\left(15\,b\,\left(a^2+b^2\right)^3\,(b\,c-a\,d)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\right)$$

Result (type ?, 1 087 154 leaves): Display of huge result suppressed!

Problem 135: Humongous result has more than 200000 leaves.

$$\int (a+b\,\text{Tan}[e+f\,x])^{3/2}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 682 leaves, 16 steps):

$$-\frac{(a-\mathrm{i}\,b)^{3/2}\,(B+\mathrm{i}\,(A-C))\,(c-\mathrm{i}\,d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}-\frac{(a+\mathrm{i}\,b)^{3/2}\,(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}+$$

$$\frac{1}{64\,b^{5/2}\,d^{5/2}\,f}\left(3\,a^4\,C\,d^4-4\,a^3\,b\,d^3\,(3\,c\,C+2\,B\,d)+6\,a^2\,b^2\,d^2\left(3\,c^2\,C+12\,B\,c\,d+8\,(A-C)\,d^2\right)-12\,a\,b^3\,d\left(c^3\,C-6\,B\,c^2\,d-24\,c\,(A-C)\,d^2+16\,B\,d^3\right)+\right.$$

$$\left.b^4\left(3\,c^4\,C-8\,B\,c^3\,d+48\,c^2\,(A-C)\,d^2-192\,B\,c\,d^3-128\,(A-C)\,d^4\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]+\frac{1}{64\,b^2\,d^2\,f}$$

$$\left(64\,b\left(a^2\,B-b^2\,B+2\,a\,b\,(A-C)\right)d^3+(b\,c-a\,d)\left(48\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(3\,b\,c\,C-8\,b\,B\,d-3\,a\,C\,d)\right)\right)\sqrt{a+b\,\text{Tan}[e+f\,x]}$$

$$\sqrt{c+d\,\text{Tan}[e+f\,x]}+\frac{\left(48\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(3\,b\,c\,C-8\,b\,B\,d-3\,a\,C\,d)\right)\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{96\,b\,d^2\,f}-$$

$$\frac{(3\,b\,c\,C-8\,b\,B\,d-3\,a\,C\,d)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{24\,d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^{3/2}\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{4\,d\,f}$$

Result (type ?, 1 731 183 leaves): Display of huge result suppressed!

- **Problem 136: Humongous result has more than 200000 leaves.**

$$\int\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)dx$$

Optimal (type 3, 508 leaves, 15 steps):

$$-\frac{\sqrt{a-\mathrm{i}\,b}\,(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}-\frac{\sqrt{a+\mathrm{i}\,b}\,(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{f}+$$

$$\frac{1}{8\,b^{5/2}\,d^{3/2}\,f}\left(a^3\,C\,d^3-a^2\,b\,d^2\,(3\,c\,C+2\,B\,d)+a\,b^2\,d\left(3\,c^2\,C+12\,B\,c\,d+8\,(A-C)\,d^2\right)-b^3\left(c^3\,C-6\,B\,c^2\,d-24\,c\,(A-C)\,d^2+16\,B\,d^3\right)\right)$$

$$\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]+\frac{\left(8\,b\,(A\,b+a\,B-b\,C)\,d^2-(b\,c-a\,d)\,(b\,c\,C-6\,b\,B\,d-a\,C\,d)\right)\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{8\,b^2\,d\,f}-$$

$$\frac{(b\,c\,C-6\,b\,B\,d-a\,C\,d)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{3/2}}{12\,b\,d\,f}+\frac{C\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,(c+d\,\text{Tan}[e+f\,x])^{5/2}}{3\,d\,f}$$

Result (type ?, 1 131 925 leaves): Display of huge result suppressed!

- **Problem 137: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f\,x])^{3/2}\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{\sqrt{a+b\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 384 leaves, 14 steps):

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C)(c-\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i} d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{a-\mathrm{i} b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{\sqrt{a-\mathrm{i} b}\,f}+\frac{(\mathrm{i} A-B-\mathrm{i} C)(c+\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i} d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{a+\mathrm{i} b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{\sqrt{a+\mathrm{i} b}\,f}+$$

$$\frac{\left(3 a^2 C d^2-2 a b d (3 c C+2 B d)+b^2 \left(3 c^2 C+12 B c d+8 (A-C) d^2\right)\right)\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{4 b^{5/2}\sqrt{d}\,f}+$$

$$\frac{(3 b c C+4 b B d-3 a C d)\sqrt{a+b\,\mathrm{Tan}[e+f x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{4 b^2 f}+\frac{C\sqrt{a+b\,\mathrm{Tan}[e+f x]}\,(c+d\,\mathrm{Tan}[e+f x])^{3/2}}{2 b f}$$

Result (type ?, 599 000 leaves) : Display of huge result suppressed!

Problem 138: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f x])^{3/2}\left(A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2\right)}{(a+b\,\mathrm{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 382 leaves, 14 steps) :

$$-\frac{(\mathrm{i} A+B-\mathrm{i} C)(c-\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i} d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{a-\mathrm{i} b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{(a-\mathrm{i} b)^{3/2}\,f}-$$

$$\frac{(B-\mathrm{i}(A-C))(c+\mathrm{i} d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i} d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{a+\mathrm{i} b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{(a+\mathrm{i} b)^{3/2}\,f}+\frac{\sqrt{d}\,(3 b c C+2 b B d-3 a C d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}\right]}{b^{5/2}\,f}+$$

$$\frac{\left(2 A b^2-2 a b B+3 a^2 C+b^2 C\right) d\sqrt{a+b\,\mathrm{Tan}[e+f x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f x]}}{b^2\left(a^2+b^2\right) f}-\frac{2\left(A b^2-a(b B-a C)\right)(c+d\,\mathrm{Tan}[e+f x])^{3/2}}{b\left(a^2+b^2\right) f\sqrt{a+b\,\mathrm{Tan}[e+f x]}}$$

Result (type ?, 1 073 629 leaves) : Display of huge result suppressed!

Problem 139: Humongous result has more than 200000 leaves.

$$\int \frac{(c+d\,\mathrm{Tan}[e+f x])^{3/2}\left(A+B\,\mathrm{Tan}[e+f x]+C\,\mathrm{Tan}[e+f x]^2\right)}{(a+b\,\mathrm{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 402 leaves, 14 steps) :

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,f}+\frac{2\,C\,d^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{b^{5/2}\,f}-\frac{2\left(a^4\,C\,d+b^4\,(B\,c+A\,d)+2\,a\,b^3\,(A\,c-c\,C-B\,d)-a^2\,b^2\,(B\,c+(A-3\,C)\,d)\right)\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}{b^2\,\left(a^2+b^2\right)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{3\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}$$

Result (type ?, 1 347 065 leaves) : Display of huge result suppressed!

Problem 140: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 586 leaves, 10 steps) :

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{7/2}\,f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{7/2}\,f}-$$
$$\left(2\,\left(2\,a^3\,b\,B\,d+3\,a^4\,C\,d+b^4\,(5\,B\,c+3\,A\,d)+2\,a\,b^3\,(5\,A\,c-5\,c\,C-4\,B\,d)-a^2\,b^2\,(5\,B\,c+7\,A\,d-13\,C\,d)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\Big/$$
$$\left(15\,b^2\,\left(a^2+b^2\right)^2\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}\right)-$$
$$\left(2\,\left(2\,a^5\,b\,B\,d^2+3\,a^6\,C\,d^2+a^4\,b^2\,d\,(10\,B\,c+(8\,A+C)\,d)+a^2\,b^4\,\left(45\,A\,c^2-45\,c^2\,C-90\,B\,c\,d-49\,A\,d^2+58\,C\,d^2\right)-a^3\,b^3\,\left(50\,c\,(A-C)\,d+B\,\left(15\,c^2-39\,d^2\right)\right)+\right.\right.$$
$$\left.\left.a\,b^5\,\left(70\,c\,(A-C)\,d+B\,\left(45\,c^2-23\,d^2\right)\right)+b^6\,\left(5\,c\,(3\,c\,C+4\,B\,d)-3\,A\,\left(5\,c^2-d^2\right)\right)\right)\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}\right)\Big/$$
$$\left(15\,b^2\,\left(a^2+b^2\right)^3\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{5\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}$$

Result (type ?, 1 631 085 leaves) : Display of huge result suppressed!

Problem 141: Humongous result has more than 200000 leaves.

$$\int\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 3, 697 leaves, 16 steps) :

$$-\frac{\sqrt{a-i b}\,(i A+B-i C)\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}+\frac{\sqrt{a+i b}\,(i A-B-i C)\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{f}-$$

$$\frac{1}{64\,b^{7/2}\,d^{3/2}\,f}\left(5 a^4 C d^4-4 a^3 b d^3 (5 c C+2 B d)+2 a^2 b^2 d^2\left(15 c^2 C+20 B c d+8 (A-C) d^2\right)-4 a b^3 d\left(5 c^3 C+30 B c^2 d+40 c (A-C) d^2-16 B d^3\right)+\right.$$

$$\left.b^4\left(5 c^4 C-40 B c^3 d-240 c^2 (A-C) d^2+320 B c d^3+128 (A-C) d^4\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]+\frac{1}{64\,b^3\,d\,f}$$

$$\left(64 b^2 d^2 (A b c+a B c-b c C+a A d-b B d-a C d)+(b c-a d)\left(48 b (A b+a B-b C) d^2-5 (b c-a d) (b c C-8 b B d-a C d)\right)\right)$$

$$\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}+\frac{\left(48 b (A b+a B-b C) d^2-5 (b c-a d) (b c C-8 b B d-a C d)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}{96\,b^2\,d\,f}-$$

$$\frac{(b c C-8 b B d-a C d)\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{5/2}}{24\,b\,d\,f}+\frac{C\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{7/2}}{4\,d\,f}$$

Result (type ?, 1 631 616 leaves): Display of huge result suppressed!

- **Problem 142: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{5/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{\sqrt{a+b\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 505 leaves, 15 steps):

$$-\frac{(i A+B-i C)\,(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,f}-\frac{(B-i (A-C))\,(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,f}-\frac{1}{8\,b^{7/2}\sqrt{d}\,f}$$

$$\left(5 a^3 C d^3-3 a^2 b d^2 (5 c C+2 B d)+a b^2 d\left(15 c^2 C+20 B c d+8 (A-C) d^2\right)-b^3\left(5 c^3 C+30 B c^2 d+40 c (A-C) d^2-16 B d^3\right)\right)$$

$$\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]+\frac{\left(8 b^2 d (B c+(A-C) d)+(b c-a d) (5 b c C+6 b B d-5 a C d)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{8\,b^3\,f}+$$

$$\frac{(5 b c C+6 b B d-5 a C d)\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{3/2}}{12\,b^2\,f}+\frac{C\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{5/2}}{3\,b\,f}$$

Result (type ?, 933 453 leaves): Display of huge result suppressed!

- **Problem 143: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\text{Tan}[e+f x])^{5/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(a+b\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 535 leaves, 15 steps):

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{3/2}\,f}-\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{3/2}\,f}+$$

$$\frac{\sqrt{d}\,\left(15\,a^2\,C\,d^2-6\,a\,b\,d\,(5\,c\,C+2\,B\,d)+b^2\,\left(15\,c^2\,C+20\,B\,c\,d+8\,(A-C)\,d^2\right)\right)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{4\,b^{7/2}\,f}-\frac{1}{4\,b^3\,\left(a^2+b^2\right)\,f}$$

$$d\,\left(15\,a^3\,C\,d-8\,A\,b^2\,(b\,c-a\,d)-3\,a^2\,b\,(5\,c\,C+4\,B\,d)-b^3\,(7\,c\,C+4\,B\,d)+a\,b^2\,(8\,B\,c+7\,C\,d)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+$$

$$\frac{\left(4\,A\,b^2-4\,a\,b\,B+5\,a^2\,C+b^2\,C\right)\,d\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}}{2\,b^2\,\left(a^2+b^2\right)\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{b\,\left(a^2+b^2\right)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}$$

Result (type ?, 1 654 245 leaves) : Display of huge result suppressed!

- **Problem 144: Humongous result has more than 200000 leaves.**

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{5/2}}\,dx$$

Optimal (type 3, 545 leaves, 15 steps) :

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,(c-\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{5/2}\,f}-$$

$$\frac{(B-\mathrm{i}\,(A-C))\,(c+\mathrm{i}\,d)^{5/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{5/2}\,f}+\frac{d^{3/2}\,(5\,b\,c\,C+2\,b\,B\,d-5\,a\,C\,d)\,\mathrm{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}}\right]}{b^{7/2}\,f}-\frac{1}{b^3\,\left(a^2+b^2\right)^2\,f}$$

$$d\,\left(2\,a^3\,b\,B\,d-5\,a^4\,C\,d-2\,a\,b^3\,(2\,A\,c-2\,c\,C-3\,B\,d)+2\,a^2\,b^2\,(B\,c-5\,C\,d)-b^4\,(2\,B\,c+(4\,A+C)\,d)\right)\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\,\sqrt{c+d\,\mathrm{Tan}[e+f\,x]}+$$

$$\left(2\,\left(2\,a^3\,b\,B\,d-5\,a^4\,C\,d-b^4\,(3\,B\,c+5\,A\,d)-2\,a\,b^3\,(3\,A\,c-3\,c\,C-4\,B\,d)+a^2\,b^2\,(3\,B\,c+(A-11\,C)\,d)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{3/2}\right)\Big/$$

$$\left(3\,b^2\,\left(a^2+b^2\right)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]}\right)-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)\,(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}}{3\,b\,\left(a^2+b^2\right)\,f\,(a+b\,\mathrm{Tan}[e+f\,x])^{3/2}}$$

Result (type ?, 2 018 669 leaves) : Display of huge result suppressed!

- **Problem 145: Attempted integration timed out after 120 seconds.**

$$\int\frac{(c+d\,\mathrm{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(a+b\,\mathrm{Tan}[e+f\,x])^{7/2}}\,dx$$

Optimal (type 3, 590 leaves, 15 steps) :

$$-\frac{(i A+B-i C)(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b}\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(a-i b)^{7/2} f}-\frac{(B-i (A-C))(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(a+i b)^{7/2} f}+\frac{2 C d^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{d}\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b}\sqrt{c+d \text{Tan}[e+f x]}}\right]}{b^{7/2} f}-$$

$$\left(2\left(a^6 C d^2+3 a^4 b^2 C d^2-3 a^2 b^4\left(c^2 C+2 B c d-2 C d^2-A\left(c^2-d^2\right)\right)+b^6\left(c (c C+2 B d)-A\left(c^2-d^2\right)\right)-a^3 b^3\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)+3 a b^5\left(2 c (A-C) d+B\left(c^2-d^2\right)\right)\right)\sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(b^3\left(a^2+b^2\right)^3 f\sqrt{a+b \text{Tan}[e+f x]}\right)-$$

$$\frac{2\left(a^4 C d+b^4 (B c+A d)+2 a b^3 (A c-c C-B d)-a^2 b^2 (B c+(A-3 C) d)\right)(c+d \text{Tan}[e+f x])^{3/2}}{3 b^2\left(a^2+b^2\right)^2 f (a+b \text{Tan}[e+f x])^{3/2}}-$$

$$\frac{2\left(A b^2-a (b B-a C)\right)(c+d \text{Tan}[e+f x])^{5/2}}{5 b\left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^{5/2}}$$

Result (type 1, 1 leaves) :

???

Problem 146: Humongous result has more than 200000 leaves.

$$\int\frac{(c+d \text{Tan}[e+f x])^{5/2}\left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(a+b \text{Tan}[e+f x])^{9/2}}\,dx$$

Optimal (type 3, 946 leaves, 11 steps) :

$$-\frac{(i A+B-i C)(c-i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b}\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(a-i b)^{9/2} f}-\frac{(B-i (A-C))(c+i d)^{5/2}\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b}\sqrt{c+d \text{Tan}[e+f x]}}\right]}{(a+i b)^{9/2} f}-$$

$$\left(2\left(6 a^5 b B d^2+15 a^6 C d^2+a^4 b^2 d (14 B c+8 A d+37 C d)+3 a^2 b^4\left(35 A c^2-35 c^2 C-70 B c d-39 A d^2+54 C d^2\right)-a^3 b^3\left(98 c (A-C) d+B\left(35 c^2-75 d^2\right)\right)+a b^5\left(182 c (A-C) d+B\left(105 c^2-71 d^2\right)\right)+b^6\left(7 c (5 c C+8 B d)-5 A\left(7 c^2-3 d^2\right)\right)\right)\sqrt{c+d \text{Tan}[e+f x]}\right)\Big/\left(105 b^3\left(a^2+b^2\right)^3 f (a+b \text{Tan}[e+f x])^{3/2}\right)-\frac{1}{105 b^3\left(a^2+b^2\right)^4 (b c-a d) f\sqrt{a+b \text{Tan}[e+f x]}}$$

$$2\left(6 a^7 b B d^3+15 a^8 C d^3+2 a^6 b^2 d^2 (7 B c+4 A d+26 C d)-2 a b^7\left(210 A c^3-210 c^3 C-525 B c^2 d-406 A c d^2+406 c C d^2+88 B d^3\right)-a^4 b^4\left(105 B c^3+525 A c^2 d-525 c^2 C d-749 B c d^2-311 A d^3+221 C d^3\right)+2 a^2 b^6\left(315 B c^3+875 A c^2 d-875 c^2 C d-812 B c d^2-261 A d^3+291 C d^3\right)+2 a^5 b^3 d\left(56 c (A-C) d+B\left(35 c^2-12 d^2\right)\right)-b^8\left(5 d\left(49 A c^2-49 c^2 C-3 A d^2\right)+7 B\left(15 c^3-23 c d^2\right)\right)-2 a^3 b^5\left(210 c^3 C+700 B c^2 d-798 c C d^2-317 B d^3-42 A\left(5 c^3-19 c d^2\right)\right)\right)\sqrt{c+d \text{Tan}[e+f x]}-$$

$$\left(2\left(2 a^3 b B d+5 a^4 C d+b^4 (7 B c+5 A d)+2 a b^3 (7 A c-7 c C-6 B d)-a^2 b^2 (7 B c+9 A d-19 C d)\right)(c+d \text{Tan}[e+f x])^{3/2}\right)\Big/\left(35 b^2\left(a^2+b^2\right)^2 f (a+b \text{Tan}[e+f x])^{5/2}\right)-$$

$$\frac{2\left(A b^2-a (b B-a C)\right)(c+d \text{Tan}[e+f x])^{5/2}}{7 b\left(a^2+b^2\right) f (a+b \text{Tan}[e+f x])^{7/2}}$$

Result (type ?, 2 719 441 leaves) : Display of huge result suppressed!

Problem 147: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^{5/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 505 leaves, 15 steps) :

$$-\frac{(a-i\,b)^{5/2}\,(i\,A+B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}-\frac{(a+i\,b)^{5/2}\,(B-i\,(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c+i\,d}\,f}+$$
$$\frac{1}{8\sqrt{b}\,d^{7/2}\,f}\left(5\,a^3\,C\,d^3-15\,a^2\,b\,d^2\,(c\,C-2\,B\,d)+5\,a\,b^2\,d\,\left(3\,c^2\,C-4\,B\,c\,d+8\,(A-C)\,d^2\right)-b^3\,\left(5\,c^3\,C-6\,B\,c^2\,d+8\,c\,(A-C)\,d^2+16\,B\,d^3\right)\right)$$
$$\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]+\frac{\left(8\,b\,(A\,b+a\,B-b\,C)\,d^2+(b\,c-a\,d)\,(5\,b\,c\,C-6\,b\,B\,d-5\,a\,C\,d)\right)\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{8\,d^3\,f}-$$
$$\frac{(5\,b\,c\,C-6\,b\,B\,d-5\,a\,C\,d)\,(a+b\,\text{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{12\,d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^{5/2}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{3\,d\,f}$$

Result (type ?, 933 387 leaves) : Display of huge result suppressed!

Problem 148: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b\,\text{Tan}[e+f\,x])^{3/2}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 383 leaves, 14 steps) :

$$-\frac{(a-i\,b)^{3/2}\,(i\,A+B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c-i\,d}\,f}+\frac{(a+i\,b)^{3/2}\,(i\,A-B-i\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c+i\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+i\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{\sqrt{c+i\,d}\,f}+$$
$$\frac{\left(3\,a^2\,C\,d^2-6\,a\,b\,d\,(c\,C-2\,B\,d)+b^2\,\left(3\,c^2\,C-4\,B\,c\,d+8\,(A-C)\,d^2\right)\right)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{4\sqrt{b}\,d^{5/2}\,f}-$$
$$\frac{(3\,b\,c\,C-4\,b\,B\,d-3\,a\,C\,d)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{4\,d^2\,f}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^{3/2}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}{2\,d\,f}$$

Result (type ?, 599 000 leaves) : Display of huge result suppressed!

Problem 149: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)}{\sqrt{c+d\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 3, 290 leaves, 13 steps):

$$-\frac{\sqrt{a-i b}\,(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{c-i d}\,f}+\frac{\sqrt{a+i b}\,(i A-B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{c+i d}\,f}-\frac{(b c C-2 b B d-a C d)\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{b}\,d^{3/2}\,f}+\frac{C\,\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}{d f}$$

Result (type ?, 332 685 leaves): Display of huge result suppressed!

- **Problem 150: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 239 leaves, 12 steps):

$$-\frac{(B+i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,\sqrt{c-i d}\,f}+\frac{(i A-B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,\sqrt{c+i d}\,f}+\frac{2 C\,\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{b}\,\sqrt{d}\,f}$$

Result (type 4, 168 745 leaves): Display of huge result suppressed!

- **Problem 151: Humongous result has more than 200000 leaves.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(a+b\,\text{Tan}[e+f x])^{3/2}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 251 leaves, 8 steps):

$$-\frac{(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{3/2}\,\sqrt{c-i d}\,f}-\frac{(B-i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{3/2}\,\sqrt{c+i d}\,f}-\frac{2\left(A b^2-a (b B-a C)\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{\left(a^2+b^2\right)(b c-a d)\,f\,\sqrt{a+b\,\text{Tan}[e+f x]}}$$

Result (type ?, 273 190 leaves): Display of huge result suppressed!

- **Problem 152: Humongous result has more than 200000 leaves.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(a+b\,\text{Tan}[e+f x])^{5/2}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\,dx$$

Optimal (type 3, 375 leaves, 9 steps):

$$-\frac{(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a-i b)^{5/2}\sqrt{c-i d}\,f}-\frac{(B-i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(a+i b)^{5/2}\sqrt{c+i d}\,f}-\frac{2\left(A b^2-a (b B-a C)\right)\sqrt{c+d\,\text{Tan}[e+f x]}}{3\left(a^2+b^2\right)(b c-a d)\,f\,(a+b\,\text{Tan}[e+f x])^{3/2}}-$$

$$\left(2\left(5 a^3 b B d-2 a^4 C d+b^4 (3 B c-2 A d)+a b^3 (6 A c-6 c C-B d)-a^2 b^2 (3 B c+8 A d-4 C d)\right)\sqrt{c+d\,\text{Tan}[e+f x]}\right)\Big/$$
$$\left(3\left(a^2+b^2\right)^2 (b c-a d)^2 f\sqrt{a+b\,\text{Tan}[e+f x]}\right)$$

Result (type ?, 415 768 leaves) : Display of huge result suppressed!

- **Problem 153: Humongous result has more than 200000 leaves.**

$$\int\frac{(a+b\,\text{Tan}[e+f x])^{5/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 528 leaves, 15 steps) :

$$-\frac{(a-i b)^{5/2}(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c-i d)^{3/2} f}-\frac{(a+i b)^{5/2}(B-i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c+i d)^{3/2} f}+$$

$$\frac{\sqrt{b}\left(15 a^2 C d^2-10 a b d (3 c C-2 B d)+b^2\left(15 c^2 C-12 B c d+8 (A-C) d^2\right)\right)\text{ArcTanh}\left[\frac{\sqrt{d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{4 d^{7/2} f}-$$

$$\frac{2\left(c^2 C-B c d+A d^2\right)(a+b\,\text{Tan}[e+f x])^{5/2}}{d\left(c^2+d^2\right) f\sqrt{c+d\,\text{Tan}[e+f x]}}-\frac{1}{4 d^3\left(c^2+d^2\right) f}$$

$$b\left(3 (b c-a d)\left(5 c^2 C-4 B c d+(4 A+C) d^2\right)-4 d^2\left((A-C)(b c-a d)+B (a c+b d)\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\,\sqrt{c+d\,\text{Tan}[e+f x]}+$$

$$\frac{b\left(5 c^2 C-4 B c d+(4 A+C) d^2\right)(a+b\,\text{Tan}[e+f x])^{3/2}\sqrt{c+d\,\text{Tan}[e+f x]}}{2 d^2\left(c^2+d^2\right) f}$$

Result (type ?, 1 653 959 leaves) : Display of huge result suppressed!

- **Problem 154: Humongous result has more than 200000 leaves.**

$$\int\frac{(a+b\,\text{Tan}[e+f x])^{3/2}\left(A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2\right)}{(c+d\,\text{Tan}[e+f x])^{3/2}}\,dx$$

Optimal (type 3, 380 leaves, 14 steps) :

$$-\frac{(a-i b)^{3/2} (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c-i d)^{3/2} f}-\frac{(a+i b)^{3/2} (B-i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c+i d)^{3/2} f}-\frac{\sqrt{b} (3 b c C-2 b B d-3 a C d) \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{d^{5/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^{3/2}}{d \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}+\frac{b \left(3 c^2 C-2 B c d+(2 A+C) d^2\right) \sqrt{a+b \text{Tan}[e+f x]} \sqrt{c+d \text{Tan}[e+f x]}}{d^2 \left(c^2+d^2\right) f}$$

Result (type ?, 1 073 499 leaves) : Display of huge result suppressed !

Problem 155: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b \text{Tan}[e+f x]} \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(c+d \text{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 299 leaves, 13 steps) :

$$-\frac{\sqrt{a-i b} (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c-i d)^{3/2} f}-\frac{\sqrt{a+i b} (B-i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c+i d)^{3/2} f}+\frac{2 \sqrt{b} C \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{d^{3/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) \sqrt{a+b \text{Tan}[e+f x]}}{d \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}$$

Result (type ?, 621 084 leaves) : Display of huge result suppressed !

Problem 156: Humongous result has more than 200000 leaves.

$$\int \frac{A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2}{\sqrt{a+b \text{Tan}[e+f x]} (c+d \text{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 251 leaves, 8 steps) :

$$-\frac{(B+i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{\sqrt{a-i b} (c-i d)^{3/2} f}+\frac{(i A-B-i C) \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{\sqrt{a+i b} (c+i d)^{3/2} f}+\frac{2 \left(c^2 C-B c d+A d^2\right) \sqrt{a+b \text{Tan}[e+f x]}}{(b c-a d) \left(c^2+d^2\right) f \sqrt{c+d \text{Tan}[e+f x]}}$$

Result (type ?, 273 112 leaves) : Display of huge result suppressed !

Problem 157: Humongous result has more than 200000 leaves.

$$\int \frac{A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2}{(a+b \text{Tan}[e+f x])^{3/2} (c+d \text{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 383 leaves, 9 steps) :

$$-\frac{(i A+B-i C) \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-i b)^{3/2} (c-i d)^{3/2} f}-\frac{(B-i (A-C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+i b)^{3/2} (c+i d)^{3/2} f}-\frac{2 \left(A b^2-a (b B-a C)\right)}{\left(a^2+b^2\right) (b c-a d) f \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}}-$$
$$\left(2 d \left(b^2 c (c C-B d)-a b B \left(c^2+d^2\right)+a^2 \left(2 c^2 C-B c d+C d^2\right)+A \left(a^2 d^2+b^2 \left(c^2+2 d^2\right)\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}\right) \Big/ \left(\left(a^2+b^2\right) (b c-a d)^2 \left(c^2+d^2\right) f \sqrt{c+d \operatorname{Tan}[e+f x]}\right)$$

Result (type ?, 544 406 leaves) : Display of huge result suppressed!

▪ Problem 158: Humongous result has more than 200000 leaves.

$$\int \frac{A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2}{(a+b \operatorname{Tan}[e+f x])^{5/2} (c+d \operatorname{Tan}[e+f x])^{3/2}} \, dx$$

Optimal (type 3, 598 leaves, 10 steps) :

$$-\frac{(i A+B-i C) \operatorname{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a-i b)^{5/2} (c-i d)^{3/2} f}-\frac{(B-i (A-C)) \operatorname{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \operatorname{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \operatorname{Tan}[e+f x]}}\right]}{(a+i b)^{5/2} (c+i d)^{3/2} f}-\frac{2 \left(A b^2-a (b B-a C)\right)}{3 \left(a^2+b^2\right) (b c-a d) f (a+b \operatorname{Tan}[e+f x])^{3/2} \sqrt{c+d \operatorname{Tan}[e+f x]}}-$$
$$\frac{2 \left(7 a^3 b B d-4 a^4 C d+b^4 (3 B c-4 A d)+a b^3 (6 A c-6 c C+B d)-a^2 b^2 (3 B c+2 (5 A-C) d)\right)}{3 \left(a^2+b^2\right)^2 (b c-a d)^2 f \sqrt{a+b \operatorname{Tan}[e+f x]} \sqrt{c+d \operatorname{Tan}[e+f x]}}-$$
$$\left(2 d \left(8 a^3 b B d \left(c^2+d^2\right)+2 a b^3 (3 A c-3 c C+B d) \left(c^2+d^2\right)-a^4 d \left(8 c^2 C-3 B c d+(3 A+5 C) d^2\right)-a^2 b^2 \left(3 B c^3+11 A c^2 d+5 c^2 C d-3 B c d^2+17 A d^3-C d^3\right)-b^4 \left(d \left(5 A c^2+3 c^2 C+8 A d^2\right)-3 B \left(c^3+2 c d^2\right)\right)\right) \sqrt{a+b \operatorname{Tan}[e+f x]}\right) \Big/ \left(3 \left(a^2+b^2\right)^2 (b c-a d)^3 \left(c^2+d^2\right) f \sqrt{c+d \operatorname{Tan}[e+f x]}\right)$$

Result (type ?, 815 997 leaves) : Display of huge result suppressed!

▪ Problem 159: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b \operatorname{Tan}[e+f x])^{5/2} \left(A+B \operatorname{Tan}[e+f x]+C \operatorname{Tan}[e+f x]^2\right)}{(c+d \operatorname{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 549 leaves, 15 steps) :

$$-\frac{(a-i b)^{5/2} (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{(a+i b)^{5/2} (B-i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c+i d)^{5/2} f}-$$

$$\frac{b^{3/2} (5 b c C-2 b B d-5 a C d) \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{d^{7/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^{5/2}}{3 d \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^{3/2}}-$$

$$\left(2 \left(b \left(5 c^4 C-2 B c^3 d-c^2 (A-11 C) d^2-8 B c d^3+5 A d^4\right)+3 a d^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) (a+b \text{Tan}[e+f x])^{3/2}\right) \Big/$$

$$\left(3 d^2 \left(c^2+d^2\right)^2 f \sqrt{c+d \text{Tan}[e+f x]}\right)+\frac{1}{d^3 \left(c^2+d^2\right)^2 f}$$

$$b \left(b \left(5 c^4 C-2 B c^3 d+10 c^2 C d^2-6 B c d^3+(4 A+C) d^4\right)+2 a d^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) \sqrt{a+b \text{Tan}[e+f x]} \sqrt{c+d \text{Tan}[e+f x]}$$

Result (type ?, 2 018 643 leaves) : Display of huge result suppressed !

Problem 160: Humongous result has more than 200000 leaves.

$$\int \frac{(a+b \text{Tan}[e+f x])^{3/2} \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(c+d \text{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 407 leaves, 14 steps) :

$$-\frac{(a-i b)^{3/2} (i A+B-i C) \text{ArcTanh}\left[\frac{\sqrt{c-i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a-i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{(a+i b)^{3/2} (B-i (A-C)) \text{ArcTanh}\left[\frac{\sqrt{c+i d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{a+i b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{(c+i d)^{5/2} f}+$$

$$\frac{2 b^{3/2} C \text{ArcTanh}\left[\frac{\sqrt{d} \sqrt{a+b \text{Tan}[e+f x]}}{\sqrt{b} \sqrt{c+d \text{Tan}[e+f x]}}\right]}{d^{5/2} f}-\frac{2 \left(c^2 C-B c d+A d^2\right) (a+b \text{Tan}[e+f x])^{3/2}}{3 d \left(c^2+d^2\right) f (c+d \text{Tan}[e+f x])^{3/2}}-$$

$$\frac{2 \left(b \left(c^4 C-c^2 (A-3 C) d^2-2 B c d^3+A d^4\right)+a d^2 \left(2 c (A-C) d-B \left(c^2-d^2\right)\right)\right) \sqrt{a+b \text{Tan}[e+f x]}}{d^2 \left(c^2+d^2\right)^2 f \sqrt{c+d \text{Tan}[e+f x]}}$$

Result (type ?, 1 347 117 leaves) : Display of huge result suppressed !

Problem 161: Humongous result has more than 200000 leaves.

$$\int \frac{\sqrt{a+b \text{Tan}[e+f x]} \left(A+B \text{Tan}[e+f x]+C \text{Tan}[e+f x]^2\right)}{(c+d \text{Tan}[e+f x])^{5/2}} \, dx$$

Optimal (type 3, 373 leaves, 9 steps) :

$$-\frac{\sqrt{a-i b}\,(i A+B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c-i d)^{5/2} f}-\frac{\sqrt{a+i b}\,(B-i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{(c+i d)^{5/2} f}-\frac{2\left(c^2 C-B c d+A d^2\right)\sqrt{a+b\,\text{Tan}[e+f x]}}{3 d\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^{3/2}}+$$
$$\left(2\left(b\left(c^4 C+2 B c^3 d-c^2 (5 A-7 C) d^2-4 B c d^3+A d^4\right)+3 a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\right)\Big/$$
$$\left(3 d (b c-a d)\left(c^2+d^2\right)^2 f\sqrt{c+d\,\text{Tan}[e+f x]}\right)$$

Result (type ?, 815 645 leaves) : Display of huge result suppressed!

- **Problem 162: Humongous result has more than 200000 leaves.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{\sqrt{a+b\,\text{Tan}[e+f x]}\,(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 379 leaves, 9 steps) :

$$-\frac{(B+i (A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c-i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a-i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a-i b}\,(c-i d)^{5/2} f}+\frac{(i A-B-i C)\,\text{ArcTanh}\left[\frac{\sqrt{c+i d}\,\sqrt{a+b\,\text{Tan}[e+f x]}}{\sqrt{a+i b}\,\sqrt{c+d\,\text{Tan}[e+f x]}}\right]}{\sqrt{a+i b}\,(c+i d)^{5/2} f}+\frac{2\left(c^2 C-B c d+A d^2\right)\sqrt{a+b\,\text{Tan}[e+f x]}}{3 (b c-a d)\left(c^2+d^2\right) f\,(c+d\,\text{Tan}[e+f x])^{3/2}}+$$
$$\left(2\left(b\left(2 c^4 C-5 B c^3 d+4 c^2 (2 A-C) d^2+B c d^3+2 A d^4\right)-3 a d^2\left(2 c (A-C) d-B\left(c^2-d^2\right)\right)\right)\sqrt{a+b\,\text{Tan}[e+f x]}\right)\Big/$$
$$\left(3 (b c-a d)^2\left(c^2+d^2\right)^2 f\sqrt{c+d\,\text{Tan}[e+f x]}\right)$$

Result (type ?, 415 768 leaves) : Display of huge result suppressed!

- **Problem 163: Humongous result has more than 200000 leaves.**

$$\int\frac{A+B\,\text{Tan}[e+f x]+C\,\text{Tan}[e+f x]^2}{(a+b\,\text{Tan}[e+f x])^{3/2}\,(c+d\,\text{Tan}[e+f x])^{5/2}}\,dx$$

Optimal (type 3, 651 leaves, 10 steps) :

$$-\frac{(\mathrm{i}\,A+B-\mathrm{i}\,C)\,\text{ArcTanh}\left[\frac{\sqrt{c-\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a-\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a-\mathrm{i}\,b)^{3/2}\,(c-\mathrm{i}\,d)^{5/2}\,f}-$$

$$\frac{(B-\mathrm{i}\,(A-C))\,\text{ArcTanh}\left[\frac{\sqrt{c+\mathrm{i}\,d}\,\sqrt{a+b\,\text{Tan}[e+f\,x]}}{\sqrt{a+\mathrm{i}\,b}\,\sqrt{c+d\,\text{Tan}[e+f\,x]}}\right]}{(a+\mathrm{i}\,b)^{3/2}\,(c+\mathrm{i}\,d)^{5/2}\,f}-\frac{2\,\left(A\,b^2-a\,(b\,B-a\,C)\right)}{\left(a^2+b^2\right)\,(b\,c-a\,d)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\,\left(c+d\,\text{Tan}[e+f\,x]\right)^{3/2}}-$$

$$\left(2\,d\,\left(b^2\,c\,(c\,C-B\,d)-3\,a\,b\,B\,\left(c^2+d^2\right)+a^2\,\left(4\,c^2\,C-B\,c\,d+3\,C\,d^2\right)+A\,\left(a^2\,d^2+b^2\,\left(3\,c^2+4\,d^2\right)\right)\right)\,\sqrt{a+b\,\text{Tan}[e+f\,x]}\right)\Big/$$
$$\left(3\,\left(a^2+b^2\right)\,(b\,c-a\,d)^2\,\left(c^2+d^2\right)\,f\,(c+d\,\text{Tan}[e+f\,x])^{3/2}\right)-$$
$$\left(2\,d\,\left(b^3\,c\,\left(5\,c^3\,C-8\,B\,c^2\,d-c\,C\,d^2-2\,B\,d^3\right)+a^2\,b\,\left(8\,c^4\,C-8\,B\,c^3\,d+5\,c^2\,C\,d^2-2\,B\,c\,d^3+3\,C\,d^4\right)+3\,a^3\,d^2\,\left(2\,c\,C\,d+B\,\left(c^2-d^2\right)\right)+\right.\right.$$
$$\left.3\,a\,b^2\,\left(2\,c\,C\,d^3-B\,\left(c^4+c^2\,d^2+2\,d^4\right)\right)-A\,\left(6\,a^3\,c\,d^3+6\,a\,b^2\,c\,d^3-a^2\,b\,d^2\,\left(11\,c^2+5\,d^2\right)-b^3\,\left(3\,c^4+17\,c^2\,d^2+8\,d^4\right)\right)\right)$$
$$\left.\sqrt{a+b\,\text{Tan}[e+f\,x]}\right)\Big/\left(3\,\left(a^2+b^2\right)\,(b\,c-a\,d)^3\,\left(c^2+d^2\right)^2\,f\,\sqrt{c+d\,\text{Tan}[e+f\,x]}\right)$$

Result (type ?, 816 231 leaves) : Display of huge result suppressed!

Problem 164: Unable to integrate problem.

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^n\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 6, 376 leaves, 9 steps) :

$$-\frac{1}{2\,(a-\mathrm{i}\,b)\,f\,(1+m)}(B+\mathrm{i}\,(A-C))\,\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\,\frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathrm{i}\,b}\right]$$
$$(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^n\,\left(\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right)^{-n}-$$
$$\frac{1}{2\,(\mathrm{i}\,a-b)\,f\,(1+m)}(A+\mathrm{i}\,B-C)\,\text{AppellF1}\left[1+m,\,-n,\,1,\,2+m,\,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d},\,\frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]$$
$$(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^n\,\left(\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right)^{-n}+\frac{1}{b\,f\,(1+m)}$$
$$C\,\text{Hypergeometric2F1}\left[1+m,\,-n,\,2+m,\,-\frac{d\,(a+b\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^n\,\left(\frac{b\,(c+d\,\text{Tan}[e+f\,x])}{b\,c-a\,d}\right)^{-n}$$

Result (type 8, 47 leaves) :

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^n\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Problem 165: Unable to integrate problem.

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^3\,\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\,dx$$

Optimal (type 5, 560 leaves, 9 steps) :

$$\left(\left(b\,c\,(2+m)\left(b^2\,d\,(B\,c+(A-C)\,d)\,(3+m)\,(4+m)-2\,(b\,c-a\,d)\,(3\,a\,C\,d-b\,(3\,c\,C+B\,d\,(4+m)))\right)+d\left(b^3\left(2\,c\,(A-C)\,d+B\left(c^2-d^2\right)\right)(2+m)\,(3+m)\,(4+m)-a\left(b^2\,d\,(B\,c+(A-C)\,d)\,(3+m)\,(4+m)-2\,(b\,c-a\,d)\,(3\,a\,C\,d-b\,(3\,c\,C+B\,d\,(4+m)))\right)\right)\right)(a+b\,\text{Tan}[e+f\,x])^{1+m}\right)\Big/$$

$$\left(b^4\,f\,(1+m)\,(2+m)\,(3+m)\,(4+m)\right)+\frac{(A-\mathbb{i}\,B-C)\,(c-\mathbb{i}\,d)^3\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(\mathbb{i}\,a+b)\,f\,(1+m)}-$$

$$\frac{(A+\mathbb{i}\,B-C)\,(c+\mathbb{i}\,d)^3\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(\mathbb{i}\,a-b)\,f\,(1+m)}+$$

$$\frac{1}{b^3\,f\,(2+m)\,(3+m)\,(4+m)}$$

$$d\left(b^2\,d\,(B\,c+(A-C)\,d)\,(3+m)\,(4+m)-2\,(b\,c-a\,d)\,(3\,a\,C\,d-b\,(3\,c\,C+B\,d\,(4+m)))\right)\text{Tan}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}-$$

$$\frac{(3\,a\,C\,d-b\,(3\,c\,C+B\,d\,(4+m)))\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^2}{b^2\,f\,(3+m)\,(4+m)}+$$

$$\frac{C\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^3}{b\,f\,(4+m)}$$

Result (type 8, 47 leaves) :

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^3\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\mathbb{d}x$$

- **Problem 166: Unable to integrate problem.**

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^2\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\mathbb{d}x$$

Optimal (type 5, 363 leaves, 8 steps) :

$$\frac{1}{b^3\,f\,(1+m)\,(2+m)\,(3+m)}\left(2\,a^2\,C\,d^2-a\,b\,d\,(2\,c\,C+B\,d)\,(3+m)+b^2\,(2+m)\left(2\,c^2\,C+2\,B\,c\,d\,(3+m)+(A-C)\,d^2\,(3+m)\right)\right)(a+b\,\text{Tan}[e+f\,x])^{1+m}+$$

$$\frac{(A-\mathbb{i}\,B-C)\,(c-\mathbb{i}\,d)^2\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{a+b\,\text{Tan}[e+f\,x]}{a-\mathbb{i}\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(\mathbb{i}\,a+b)\,f\,(1+m)}+$$

$$\frac{(\mathbb{i}\,A-B-\mathbb{i}\,C)\,(c+\mathbb{i}\,d)^2\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{a+b\,\text{Tan}[e+f\,x]}{a+\mathbb{i}\,b}\right](a+b\,\text{Tan}[e+f\,x])^{1+m}}{2\,(a+\mathbb{i}\,b)\,f\,(1+m)}-$$

$$\frac{d\,(2\,a\,C\,d-b\,(2\,c\,C+B\,d\,(3+m)))\,\text{Tan}[e+f\,x]\,(a+b\,\text{Tan}[e+f\,x])^{1+m}}{b^2\,f\,(2+m)\,(3+m)}+\frac{C\,(a+b\,\text{Tan}[e+f\,x])^{1+m}\,(c+d\,\text{Tan}[e+f\,x])^2}{b\,f\,(3+m)}$$

Result (type 8, 47 leaves) :

$$\int (a+b\,\text{Tan}[e+f\,x])^m\,(c+d\,\text{Tan}[e+f\,x])^2\left(A+B\,\text{Tan}[e+f\,x]+C\,\text{Tan}[e+f\,x]^2\right)\mathbb{d}x$$

Problem 170: Unable to integrate problem.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^m\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Optimal (type 5, 403 leaves, 9 steps):

$$\frac{(A-\mathrm{i}\,B-C)\,\mathrm{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a-\mathrm{i}\,b}\right]\,(a+b\,\mathrm{Tan}[e+f\,x])^{1+m}}{2\,(\mathrm{i}\,a+b)\,(c-\mathrm{i}\,d)^2\,f\,(1+m)}+\frac{(\mathrm{i}\,A-B-\mathrm{i}\,C)\,\mathrm{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\mathrm{Tan}[e+f\,x]}{a+\mathrm{i}\,b}\right]\,(a+b\,\mathrm{Tan}[e+f\,x])^{1+m}}{2\,(a+\mathrm{i}\,b)\,(c+\mathrm{i}\,d)^2\,f\,(1+m)}-$$
$$\left(\left(a\,d^2\,\left(2\,c\,(A-C)\,d-B\,\left(c^2-d^2\right)\right)-b\,\left(A\,d^2\,\left(c^2\,(2-m)-d^2\,m\right)-B\,c\,d\,\left(c^2\,(1-m)-d^2\,(1+m)\right)-c^2\,C\,\left(c^2\,m+d^2\,(2+m)\right)\right)\right)\right.$$
$$\left.\mathrm{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{d\,(a+b\,\mathrm{Tan}[e+f\,x])}{b\,c-a\,d}\right]\,(a+b\,\mathrm{Tan}[e+f\,x])^{1+m}\right)\Big/$$
$$\left((b\,c-a\,d)^2\,\left(c^2+d^2\right)^2\,f\,(1+m)\right)+\frac{\left(c^2\,C-B\,c\,d+A\,d^2\right)\,(a+b\,\mathrm{Tan}[e+f\,x])^{1+m}}{(b\,c-a\,d)\,\left(c^2+d^2\right)\,f\,(c+d\,\mathrm{Tan}[e+f\,x])}$$

Result (type 8, 47 leaves):

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^m\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^2}\,dx$$

Problem 171: Unable to integrate problem.

$$\int \frac{(a+b\,\mathrm{Tan}[e+f\,x])^m\,\left(A+B\,\mathrm{Tan}[e+f\,x]+C\,\mathrm{Tan}[e+f\,x]^2\right)}{(c+d\,\mathrm{Tan}[e+f\,x])^3}\,dx$$

Optimal (type 5, 702 leaves, 10 steps):

$$\frac{(A-iB-C)\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+fx]}{a-ib}\right](a+b\,\text{Tan}[e+fx])^{1+m}}{2\,(ia+b)\,(c-id)^3\,f\,(1+m)}+$$
$$\frac{(A+iB-C)\,\text{Hypergeometric2F1}\left[1,1+m,2+m,\frac{a+b\,\text{Tan}[e+fx]}{a+ib}\right](a+b\,\text{Tan}[e+fx])^{1+m}}{2\,(a+ib)\,(ic-d)^3\,f\,(1+m)}+$$
$$\frac{1}{2\,(bc-ad)^3\,(c^2+d^2)^3\,f\,(1+m)}\Big(2a^2d^3\left((A-C)\,d\,(3c^2-d^2)-B\,(c^3-3cd^2)\right)-$$
$$2abd^2\left(B\,(6c^2d^2-c^4\,(2-m)-d^4m)+2c\,(A-C)\,d\,(c^2\,(3-m)-d^2\,(1+m))\right)-b^2\Big(A\,d^2\left(d^4\,(1-m)\,m+2c^2d^2\,(1+3m-m^2)-c^4\,(6-5m+m^2)\right)+$$
$$Bcd\left(d^4m\,(1+m)-2c^2d^2\,(3+m-m^2)+c^4\,(2-3m+m^2)\right)+c^2C\left(c^4\,(1-m)\,m+2c^2d^2\,(3-m-m^2)-d^4\,(2+3m+m^2)\right)\Big)\Big)$$
$$\text{Hypergeometric2F1}\left[1,1+m,2+m,-\frac{d\,(a+b\,\text{Tan}[e+fx])}{bc-ad}\right](a+b\,\text{Tan}[e+fx])^{1+m}+\frac{(c^2C-Bcd+Ad^2)\,(a+b\,\text{Tan}[e+fx])^{1+m}}{2\,(bc-ad)\,(c^2+d^2)\,f\,(c+d\,\text{Tan}[e+fx])^2}-$$
$$\Big(\Big(2ad^2\left(2c\,(A-C)\,d-B\,(c^2-d^2)\right)-b\left(c^4C\,(1-m)+Ad^4\,(1-m)-Bc^3d\,(3-m)+Bcd^3\,(1+m)+c^2d^2\,(A\,(5-m)-C\,(3+m))\right)\Big)$$
$$(a+b\,\text{Tan}[e+fx])^{1+m}\Big)\Big/\left(2\,(bc-ad)^2\,(c^2+d^2)^2\,f\,(c+d\,\text{Tan}[e+fx])\right)$$

Result (type 8, 47 leaves) :

$$\int\frac{(a+b\,\text{Tan}[e+fx])^m\,(A+B\,\text{Tan}[e+fx]+C\,\text{Tan}[e+fx]^2)}{(c+d\,\text{Tan}[e+fx])^3}\,dx$$

Test results for the 499 problems in "4.3.7 (d trig)^m (a+b (c tan)^n)^p.m"

- **Problem 33: Result more than twice size of optimal antiderivative.**

$$\int\text{Csc}[e+fx]\,(a+b\,\text{Tan}[e+fx]^2)\,dx$$

Optimal (type 3, 25 leaves, 3 steps) :

$$-\frac{a\,\text{ArcTanh}[\text{Cos}[e+fx]]}{f}+\frac{b\,\text{Sec}[e+fx]}{f}$$

Result (type 3, 51 leaves) :

$$-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{e}{2}+\frac{fx}{2}\right]\right]}{f}+\frac{a\,\text{Log}\left[\text{Sin}\left[\frac{e}{2}+\frac{fx}{2}\right]\right]}{f}+\frac{b\,\text{Sec}[e+fx]}{f}$$

- **Problem 34: Result more than twice size of optimal antiderivative.**

$$\int\text{Csc}[e+fx]^3\,(a+b\,\text{Tan}[e+fx]^2)\,dx$$

Optimal (type 3, 51 leaves, 4 steps) :

$$-\frac{(a+2b)\,\text{ArcTanh}[\text{Cos}[e+fx]]}{2f}-\frac{a\,\text{Cot}[e+fx]\,\text{Csc}[e+fx]}{2f}+\frac{b\,\text{Sec}[e+fx]}{f}$$

Result (type 3, 123 leaves):

$$-\frac{a\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2}{8f}-\frac{a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right]}{2f}-\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right]}{f}+\frac{a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right]}{2f}+\frac{b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right]}{f}+\frac{a\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{8f}+\frac{b\,\text{Sec}[e+fx]}{f}$$

Problem 35: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+fx]^5\left(a+b\,\text{Tan}[e+fx]^2\right)\,dx$$

Optimal (type 3, 79 leaves, 5 steps):

$$-\frac{3(a+4b)\,\text{ArcTanh}[\text{Cos}[e+fx]]}{8f}-\frac{(5a+4b)\,\text{Cot}[e+fx]\,\text{Csc}[e+fx]}{8f}-\frac{a\,\text{Cot}[e+fx]^3\,\text{Csc}[e+fx]}{4f}+\frac{b\,\text{Sec}[e+fx]}{f}$$

Result (type 3, 276 leaves):

$$-\frac{3a\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2}{32f}-\frac{b\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2}{8f}-\frac{a\,\text{Csc}\left[\frac{1}{2}(e+fx)\right]^4}{64f}-\frac{3a\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right]}{8f}-\frac{3b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+fx)\right]\right]}{2f}+\frac{3a\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right]}{8f}+\frac{3b\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right]}{2f}+\frac{3a\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{32f}+\frac{b\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2}{8f}+\frac{a\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^4}{64f}+\frac{b\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]}{f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]-\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)}-\frac{b\,\text{Sin}\left[\frac{1}{2}(e+fx)\right]}{f\left(\text{Cos}\left[\frac{1}{2}(e+fx)\right]+\text{Sin}\left[\frac{1}{2}(e+fx)\right]\right)}$$

Problem 47: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+fx]^3\left(a+b\,\text{Tan}[e+fx]^2\right)^2\,dx$$

Optimal (type 3, 82 leaves, 5 steps):

$$-\frac{a(a+4b)\,\text{ArcTanh}[\text{Cos}[e+fx]]}{2f}+\frac{a(a+4b)\,\text{Sec}[e+fx]}{2f}-\frac{a^2\,\text{Csc}[e+fx]^2\,\text{Sec}[e+fx]}{2f}+\frac{b^2\,\text{Sec}[e+fx]^3}{3f}$$

Result (type 3, 376 leaves):

$$-\frac{a^2 \operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{8 f}+\frac{\left(-a^2-4 a b\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{2 f}+\frac{\left(a^2+4 a b\right) \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{2 f}+\frac{a^2 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{8 f}+$$

$$\frac{b^2}{12 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2}+\frac{b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3}-\frac{b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3}+$$

$$\frac{b^2}{12 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2}+\frac{-12 a b \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]-b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{12 a b \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}$$

Problem 48: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[e+f x]^5\left(a+b \operatorname{Tan}[e+f x]^2\right)^2 dx$$

Optimal (type 3, 123 leaves, 6 steps):

$$-\frac{\left(3 a^2+24 a b+8 b^2\right) \operatorname{ArcTanh}[\operatorname{Cos}[e+f x]]}{8 f}-\frac{a(a+8 b) \operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{8 f}+$$

$$\frac{\left(a^2+8 a b+4 b^2\right) \operatorname{Sec}[e+f x]}{4 f}-\frac{a^2 \operatorname{Csc}[e+f x]^4 \operatorname{Sec}[e+f x]}{4 f}+\frac{b^2 \operatorname{Sec}[e+f x]^3}{3 f}$$

Result (type 3, 447 leaves):

$$\frac{\left(-3 a^2-8 a b\right) \operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{32 f}-\frac{a^2 \operatorname{Csc}\left[\frac{1}{2}(e+f x)\right]^4}{64 f}+\frac{\left(-3 a^2-24 a b-8 b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{8 f}+$$

$$\frac{\left(3 a^2+24 a b+8 b^2\right) \operatorname{Log}\left[\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{8 f}+\frac{\left(3 a^2+8 a b\right) \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{32 f}+\frac{a^2 \operatorname{Sec}\left[\frac{1}{2}(e+f x)\right]^4}{64 f}+$$

$$\frac{b^2}{12 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2}+\frac{b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3}-\frac{b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^3}+$$

$$\frac{b^2}{12 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)^2}+\frac{-12 a b \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]-7 b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]+\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}+\frac{12 a b \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]+7 b^2 \operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]}{6 f\left(\operatorname{Cos}\left[\frac{1}{2}(e+f x)\right]-\operatorname{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}$$

Problem 57: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sin}[e+f x]}{a+b \operatorname{Tan}[e+f x]^2} dx$$

Optimal (type 3, 60 leaves, 3 steps):

$$-\frac{\sqrt{b} \operatorname{ArcTan}\left[\frac{\sqrt{b} \operatorname{Sec}[e+f x]}{\sqrt{a-b}}\right]}{(a-b)^{3/2} f}-\frac{\operatorname{Cos}[e+f x]}{(a-b) f}$$

Result (type 3, 121 leaves):

$$\frac{1}{(a-b)^2 f}\left(\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}-\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]+\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}+\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]+(-a+b)\ \text{Cos}[e+f x]\right)$$

Problem 58: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]}{a+b\ \text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 60 leaves, 4 steps):

$$-\frac{\sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{a\sqrt{a-b}\ f}-\frac{\text{ArcTanh}[\text{Cos}[e+f x]]}{a f}$$

Result (type 3, 144 leaves):

$$\frac{1}{a(a-b) f}\left(\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}-\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]+\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}+\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]-(a-b)\left(\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]-\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]\right)\right)$$

Problem 59: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]^3}{a+b\ \text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 89 leaves, 5 steps):

$$-\frac{\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{b}\ \text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{a^2 f}-\frac{(a-2 b)\ \text{ArcTanh}[\text{Cos}[e+f x]]}{2 a^2 f}-\frac{\text{Cot}[e+f x]\ \text{Csc}[e+f x]}{2 a f}$$

Result (type 3, 195 leaves):

$$\frac{1}{8 a^2 f}\left(8\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}-\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]+8\sqrt{a-b}\ \sqrt{b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}+\sqrt{a}\ \text{Tan}\left[\frac{1}{2}(e+f x)\right]}{\sqrt{b}}\right]-a\ \text{Csc}\left[\frac{1}{2}(e+f x)\right]^2-4 a\ \text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]+8 b\ \text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]+4 a\ \text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]-8 b\ \text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]+a\ \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)$$

Problem 60: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f x]^5}{a+b\ \text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 130 leaves, 6 steps):

$$-\frac{(a-b)^{3/2}\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{a^3 f}-\frac{\left(3 a^2-12 a b+8 b^2\right)\text{ArcTanh}[\text{Cos}[e+f x]]}{8 a^3 f}-\frac{(5 a-4 b)\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{8 a^2 f}-\frac{\text{Cot}[e+f x]^3\,\text{Csc}[e+f x]}{4 a f}$$

Result (type 3, 326 leaves):

$$\frac{(a-b)^{3/2}\sqrt{b}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{a^3 f}+\frac{(a-b)^{3/2}\sqrt{b}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{a^3 f}+$$
$$\frac{(-3 a+4 b)\,\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{32 a^2 f}-\frac{\text{Csc}\left[\frac{1}{2}(e+f x)\right]^4}{64 a f}+\frac{\left(-3 a^2+12 a b-8 b^2\right)\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{8 a^3 f}+$$
$$\frac{\left(3 a^2-12 a b+8 b^2\right)\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{8 a^3 f}+\frac{(3 a-4 b)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{32 a^2 f}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4}{64 a f}$$

Problem 72: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f x]^3}{\left(a+b\,\text{Tan}[e+f x]^2\right)^2}\,dx$$

Optimal (type 3, 147 leaves, 6 steps):

$$-\frac{(3 a-4 b)\sqrt{b}\,\text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{2 a^3\sqrt{a-b}\,f}-\frac{(a-4 b)\,\text{ArcTanh}[\text{Cos}[e+f x]]}{2 a^3 f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2 a f\left(a-b+b\,\text{Sec}[e+f x]^2\right)}-\frac{b\,\text{Sec}[e+f x]}{a^2 f\left(a-b+b\,\text{Sec}[e+f x]^2\right)}$$

Result (type 3, 325 leaves):

$$-\frac{(3 a-4 b)\sqrt{a-b}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{2 a^3(-a+b) f}-$$
$$\frac{(3 a-4 b)\sqrt{a-b}\,\sqrt{b}\,\text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{2 a^3(-a+b) f}-\frac{b\,\text{Cos}[e+f x]}{a^2 f\,(a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)])}-$$
$$\frac{\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^2 f}+\frac{(-a+4 b)\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^3 f}+\frac{(a-4 b)\,\text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^3 f}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^2 f}$$

Problem 84: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f x]^3}{\left(a+b\,\text{Tan}[e+f x]^2\right)^3}\,dx$$

Optimal (type 3, 205 leaves, 7 steps):

$$-\frac{\sqrt{b}\,\left(15 a^2-40 a b+24 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b}}\right]}{8 a^4 (a-b)^{3/2} f}-\frac{(a-6 b) \text{ArcTanh}[\text{Cos}[e+f x]]}{2 a^4 f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2 a f \left(a-b+b\,\text{Sec}[e+f x]^2\right)^2}-\frac{3 b\,\text{Sec}[e+f x]}{4 a^2 f \left(a-b+b\,\text{Sec}[e+f x]^2\right)^2}-\frac{(11 a-12 b)\, b\,\text{Sec}[e+f x]}{8 a^3 (a-b) f \left(a-b+b\,\text{Sec}[e+f x]^2\right)}$$

Result (type 3, 414 leaves) :

$$\frac{\sqrt{a-b}\,\sqrt{b}\,\left(15 a^2-40 a b+24 b^2\right) \text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]-\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{8 a^4 (-a+b)^2 f}+\frac{\sqrt{a-b}\,\sqrt{b}\,\left(15 a^2-40 a b+24 b^2\right) \text{ArcTan}\left[\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]\left(\sqrt{a-b}\,\text{Cos}\left[\frac{1}{2}(e+f x)\right]+\sqrt{a}\,\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right)}{\sqrt{b}}\right]}{8 a^4 (-a+b)^2 f}+\frac{b^2\,\text{Cos}[e+f x]}{a^2 (a-b) f\,(a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)])^2}+\frac{-9 a b\,\text{Cos}[e+f x]+8 b^2\,\text{Cos}[e+f x]}{4 a^3 (a-b) f\,(a+b+a\,\text{Cos}[2 (e+f x)]-b\,\text{Cos}[2 (e+f x)])}-\frac{\text{Csc}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^3 f}+\frac{(-a+6 b) \text{Log}\left[\text{Cos}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^4 f}+\frac{(a-6 b) \text{Log}\left[\text{Sin}\left[\frac{1}{2}(e+f x)\right]\right]}{2 a^4 f}+\frac{\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2}{8 a^3 f}$$

- **Problem 92: Result more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f x]^5 \sqrt{a+b\,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 161 leaves, 6 steps) :

$$\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{f}-\frac{\text{Cos}[e+f x]\,\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{f}+\frac{2 (5 a-4 b)\,\text{Cos}[e+f x]^3 \left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{15 (a-b)^2 f}-\frac{\text{Cos}[e+f x]^5 \left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{5 (a-b) f}$$

Result (type 3, 1022 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\frac{(7\,a-8\,b)\,\mathrm{Cos}[e+f\,x]}{60\,(a-b)}+\frac{(25\,a-29\,b)\,\mathrm{Cos}[3\,(e+f\,x)]}{240\,(a-b)}-\frac{1}{80}\,\mathrm{Cos}[5\,(e+f\,x)]\right)}{f}+\frac{1}{240\,(a-b)\,f}$$

$$\left(-\left(\left(89\,a^2+226\,a\,b-331\,b^2\right)\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right.\right.$$

$$\left(\mathrm{Log}\left[\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\right]-\mathrm{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right]\right)\,\mathrm{Sin}[e+f\,x]$$

$$\left.\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,3\,\left(89\,a^2-254\,a\,b+149\,b^2\right)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\left(\mathrm{Log}\left[\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\right]-\right.\right.\right.$$

$$\left.\left.\mathrm{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right]\right)\,\mathrm{Sin}[e+f\,x]\,\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\left(4\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right.$$

$$\left(\sqrt{b}\,(b\,(-1+\mathrm{Cos}[2\,(e+f\,x)])-a\,(1+\mathrm{Cos}[2\,(e+f\,x)]))+(a-b)\,\sqrt{-2\,b\,(-1+\mathrm{Cos}[2\,(e+f\,x)])+2\,a\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right.$$

$$\mathrm{Log}\left[\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\right]+(-a+b)\,\sqrt{-2\,b\,(-1+\mathrm{Cos}[2\,(e+f\,x)])+2\,a\,(1+\mathrm{Cos}[2\,(e+f\,x)])}$$

$$\left.\left.\mathrm{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right]\right)\,\mathrm{Sin}[e+f\,x]^3\,\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/$$

$$\left(3\,(a-b)\,\sqrt{b}\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\left.\left.\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\,\sqrt{-b\,(-1+\mathrm{Cos}[2\,(e+f\,x)])+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\right)\right)\right)$$

- **Problem 93: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Sin}[e+f\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 113 leaves, 5 steps):

$$\frac{\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{f}-\frac{\mathrm{Cos}[e+f\,x]\,\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}{f}+\frac{\mathrm{Cos}[e+f\,x]^3\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{3/2}}{3\,(a-b)\,f}$$

Result (type 3, 367 leaves):

$$\frac{1}{12\sqrt{2}\,(a-b)\,f\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}}\Big(-9\,a^2+2\,a\,b+15\,b^2-8\,\big(a^2-3\,a\,b+2\,b^2\big)\,\text{Cos}[2\,(e+f\,x)]+a^2\,\text{Cos}[4\,(e+f\,x)]-2\,a\,b\,\text{Cos}[4\,(e+f\,x)]+b^2\,\text{Cos}[4\,(e+f\,x)]-12\,\sqrt{2}\,a\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]+12\,\sqrt{2}\,b^{3/2}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]+12\,\sqrt{2}\,a\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big]-12\,\sqrt{2}\,b^{3/2}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big]\Big)\,\text{Sec}[e+f\,x]$$

Problem 94: Result more than twice size of optimal antiderivative.

$$\int \text{Sin}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 72 leaves, 4 steps):

$$\frac{\sqrt{b}\,\text{ArcTanh}\Big[\frac{\sqrt{b}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\Big]}{f}-\frac{\text{Cos}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{f}$$

Result (type 3, 166 leaves):

$$-\Big(\text{Csc}[e+f\,x]\Big(\sqrt{2}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}+2\,\sqrt{b}\,\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]-2\,\sqrt{b}\,\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big]\Big)\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}\,\text{Sin}[2\,(e+f\,x)]\Big)\Big/\Big(4\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big)$$

Problem 95: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 84 leaves, 6 steps):

$$-\frac{\sqrt{a}\,\text{ArcTanh}\Big[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\Big]}{f}+\frac{\sqrt{b}\,\text{ArcTanh}\Big[\frac{\sqrt{b}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\Big]}{f}$$

Result (type 3, 503 leaves):

$$\left((1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(-\sqrt{a} \text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+2 \sqrt{b} \text{Log}\left[1-\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]+\right.\right.$$

$$\sqrt{a} \text{Log}\left[a-a \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+$$

$$\sqrt{a} \text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]-$$

$$\left.\left.2 \sqrt{b} \text{Log}\left[b+b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{b} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right) \Big/$$

$$\left(2 f \sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]} \sqrt{\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right)$$

- **Problem 96: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[e+f x]^3 \sqrt{a+b \text{Tan}[e+f x]^2} \, dx$$

Optimal (type 3, 127 leaves, 7 steps) :

$$-\frac{(a+b) \text{ArcTanh}\left[\frac{\sqrt{a} \text{Sec}[e+f x]}{\sqrt{a-b+b \text{Sec}[e+f x]^2}}\right]}{2 \sqrt{a} f}+\frac{\sqrt{b} \text{ArcTanh}\left[\frac{\sqrt{b} \text{Sec}[e+f x]}{\sqrt{a-b+b \text{Sec}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x] \text{Csc}[e+f x] \sqrt{a-b+b \text{Sec}[e+f x]^2}}{2 f}$$

Result (type 3, 1100 leaves) :

$$-\frac{\sqrt{\frac{a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \text{Cot}[e+f x] \text{Csc}[e+f x]}{2 f}+$$

$$\frac{1}{2\,f}\Bigg(\Bigg((a-b)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(-\frac{\mathrm{Log}\big[\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\big[1-\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{2\,\mathrm{Log}\Big[b+b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}\,\Big]}{\sqrt{b}}\Bigg)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]$$

$$\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Bigg)\Bigg/\Bigg(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big(\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^3\Big)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\,\Bigg)+$$

$$\Bigg((a+3\,b)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(-\frac{\mathrm{Log}\big[\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\big[1-\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg)$$

- **Problem 97: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[e+f\,x]^5\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 187 leaves, 8 steps):

$$-\frac{\left(3\,a^2+6\,a\,b-b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{3/2}\,f}+\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{f}-$$

$$\frac{(3\,a+b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{8\,a\,f}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{4\,f}$$

Result (type 3, 1161 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{(-3\,a\,\text{Cos}[e+f\,x]-b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^2}{8\,a}-\frac{1}{4}\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3\right)}{f}+$$

$$\frac{1}{8\,a\,f}\left(\left(\left(3\,a^2-2\,a\,b-b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\right.\right.$$

$$\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\right.$$

$$\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\left.\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)\Bigg/\left(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\left(\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\right)+$$

$$\left(\left(3\,a^2+14\,a\,b-b^2\right)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\right.$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 98: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f\,x]^4\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 189 leaves, 8 steps):

$$\frac{\left(3\,a^2-12\,a\,b+8\,b^2\right)\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{3/2}\,f}+\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}-$$

$$\frac{(3\,a-4\,b)\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,(a-b)\,f}-\frac{\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]^3\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{4\,f}$$

Result (type 4, 771 leaves):

$$\frac{1}{8\,(a-b)\,f}\left(-\left(b\left(3\,a^2+4\,a\,b-8\,b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\ (a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))\ -$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\left(3\,a^2-12\,a\,b+8\,b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\ +$$

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{(4\,a-5\,b)\,\mathrm{Sin}[2\,(e+f\,x)]}{16\,(a-b)}+\frac{1}{32}\,\mathrm{Sin}[4\,(e+f\,x)]\right)}{f}$$

- **Problem 99: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Sin}[e+f\,x]^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 128 leaves, 7 steps):

$$\frac{(a-2\,b)\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{2\,\sqrt{a-b}\,f}+\frac{\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{f}-\frac{\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{2\,f}$$

Result (type 4, 716 leaves):

$$\frac{1}{2\,f}\left(-\left(b\,(a+2\,b)\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,(a-2\,b)\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\text{Csc}[2\,(e+f\,x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\text{Csc}[2\,(e+f\,x)]\ \text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\ \text{Sin}[2\,(e+f\,x)]}{4\,f}$$

- **Problem 100: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 85 leaves, 6 steps):

$$\frac{\sqrt{a-b}\ \text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}+\frac{\sqrt{b}\ \text{ArcTanh}\left[\frac{\sqrt{b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}$$

Result (type 3, 203 leaves):

$$\frac{1}{2 f}\left(-i \sqrt{a-b}\, \text{Log}\left[-\frac{4 i \left(a-i b \,\text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} (i+\text{Tan}[e+f x])}\right]+\right.$$

$$\left. i \sqrt{a-b}\, \text{Log}\left[\frac{4 i \left(a+i b \,\text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} (-i+\text{Tan}[e+f x])}\right]+2 \sqrt{b}\, \text{Log}\left[b \,\text{Tan}[e+f x]+\sqrt{b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right]\right)$$

Problem 101: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^2 \sqrt{a+b \,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 66 leaves, 4 steps):

$$\frac{\sqrt{b}\, \text{ArcTanh}\left[\frac{\sqrt{b}\, \text{Tan}[e+f x]}{\sqrt{a+b \,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x] \sqrt{a+b \,\text{Tan}[e+f x]^2}}{f}$$

Result (type 4, 156 leaves):

$$-\left(\left(\left((a+b+(a-b) \,\text{Cos}[2 (e+f x)])\, \text{Csc}[e+f x]^2-\sqrt{2}\, b \sqrt{\frac{(a+b+(a-b) \,\text{Cos}[2 (e+f x)])\, \text{Csc}[e+f x]^2}{b}}\right.\right.\right.$$

$$\left.\left.\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \,\text{Cos}[2 (e+f x)])\, \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right]\right) \text{Tan}[e+f x]\right) \Big/ \left(\sqrt{2}\, f \sqrt{(a+b+(a-b) \,\text{Cos}[2 (e+f x)])\, \text{Sec}[e+f x]^2}\right)\right)$$

Problem 102: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f x]^4 \sqrt{a+b \,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$\frac{\sqrt{b}\, \text{ArcTanh}\left[\frac{\sqrt{b}\, \text{Tan}[e+f x]}{\sqrt{a+b \,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x] \sqrt{a+b \,\text{Tan}[e+f x]^2}}{f}-\frac{\text{Cot}[e+f x]^3 \left(a+b \,\text{Tan}[e+f x]^2\right)^{3/2}}{3 a f}$$

Result (type 4, 298 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{(-2\,a\,\text{Cos}[e+f\,x]-b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a}-\frac{1}{3}\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2\right)}{f}-$$

$$\left(2\,b^2\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\,(a\,f\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))$$

- **Problem 103: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Csc}[e+f\,x]^6\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 141 leaves, 6 steps):

$$\frac{\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}-\frac{\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}-$$

$$\frac{2\,(5\,a-b)\,\text{Cot}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{15\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^5\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{5\,a\,f}$$

Result (type 4, 346 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\frac{\left(-8\,a^2\,\mathrm{Cos}[e+f\,x]-9\,a\,b\,\mathrm{Cos}[e+f\,x]+2\,b^2\,\mathrm{Cos}[e+f\,x]\right)\mathrm{Csc}[e+f\,x]}{15\,a^2}+\frac{(-4\,a\,\mathrm{Cos}[e+f\,x]-b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]^3}{15\,a}-\frac{1}{5}\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^4\right)-$$

$$\left(2\,b^2\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(a\,f\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\right)$$

Problem 104: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Sin}[e+f\,x]^5\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 227 leaves, 7 steps):

$$\frac{(3\,a-7\,b)\,\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Sec}[e+f\,x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}\right]}{2\,f}+\frac{(3\,a-7\,b)\,b\,\mathrm{Sec}[e+f\,x]\,\sqrt{a-b+b\,\mathrm{Sec}[e+f\,x]^2}}{2\,(a-b)\,f}-$$

$$\frac{(3\,a-7\,b)\,\mathrm{Cos}[e+f\,x]\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{3/2}}{3\,(a-b)\,f}+\frac{2\,\mathrm{Cos}[e+f\,x]^3\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{5/2}}{3\,(a-b)\,f}-\frac{\mathrm{Cos}[e+f\,x]^5\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^{5/2}}{5\,(a-b)\,f}$$

Result (type 3, 1017 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\frac{1}{60}\,(7\,a-13\,b)\,\text{Cos}[e+f\,x]+\frac{1}{240}\,(25\,a-49\,b)\,\text{Cos}[3\,(e+f\,x)]-\frac{1}{80}\,(a-b)\,\text{Cos}[5\,(e+f\,x)]+\frac{1}{2}\,b\,\text{Sec}[e+f\,x]\right)+\frac{1}{240\,f}$$

$$\Bigg(-\Bigg(\left(89\,a^2+246\,a\,b-1271\,b^2\right)\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\left(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\right)\,\text{Sin}[e+f\,x]$$

$$\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\left(89\,a^2-474\,a\,b+409\,b^2\right)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\Bigg(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-$$

$$\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\Bigg)\,\text{Sin}[e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/$$

$$\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\Bigg(4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\left(\sqrt{b}\,(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)]))\right)+(a-b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]+(-a+b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\Bigg)\,\text{Sin}[e+f\,x]^3\,\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/$$

$$\Bigg(3\,(a-b)\,\sqrt{b}\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\,\sqrt{-b\,(-1+\text{Cos}[2\,(e+f\,x)])+a\,(1+\text{Cos}[2\,(e+f\,x)])}\Bigg)\Bigg)\Bigg)$$

- **Problem 105: Result more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 186 leaves, 6 steps):

$$\frac{(3\,a-5\,b)\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{2\,f}+\frac{(3\,a-5\,b)\,b\,\text{Sec}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{2\,(a-b)\,f}-$$

$$\frac{(3\,a-5\,b)\,\text{Cos}[e+f\,x]\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}{3\,(a-b)\,f}+\frac{\text{Cos}[e+f\,x]^3\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{5/2}}{3\,(a-b)\,f}$$

Result (type 3, 996 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{1}{12}\,(a-b)\,\text{Cos}[e+f\,x]+\frac{1}{12}\,(a-b)\,\text{Cos}[3\,(e+f\,x)]+\frac{1}{2}\,b\,\text{Sec}[e+f\,x]\right)}{f}+$$

$$\frac{1}{12\,f}\left(-\left(\left(5\,a^2+18\,a\,b-47\,b^2\right)\,(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right.\right.$$

$$\left(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\right)\,\text{Sin}[e+f\,x]$$

$$\left.\text{Sin}[2\,(e+f\,x)]\right)\Big/\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\left(5\,a^2-18\,a\,b+13\,b^2\right)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\left(\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]-\right.\right.\right.$$

$$\left.\left.\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\right)\,\text{Sin}[e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\right)\Big/$$

$$\left(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)-$$

$$\left(4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right.$$

$$\left(\sqrt{b}\,\left(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)])\right)\right)+(a-b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\text{Log}\left[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\right]+(-a+b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\left.\text{Log}\left[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\right]\right)\,\text{Sin}[e+f\,x]^3\,\text{Sin}[2\,(e+f\,x)]\Big)\Big/$$

$$\left(3\,(a-b)\,\sqrt{b}\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\left.\left.\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\,\sqrt{-b\,(-1+\text{Cos}[2\,(e+f\,x)])+a\,(1+\text{Cos}[2\,(e+f\,x)])}\right)\right)\right)$$

Problem 106: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sin}[e+f x]\left(a+b \operatorname{Tan}[e+f x]^2\right)^{3/2} \, dx$$

Optimal (type 3, 113 leaves, 5 steps):

$$\frac{3 (a-b) \sqrt{b} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \operatorname{Sec}[e+f x]}{\sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}\right]}{2 f}+\frac{3 b \operatorname{Sec}[e+f x] \sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}{2 f}-\frac{\operatorname{Cos}[e+f x]\left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}{f}$$

Result (type 3, 478 leaves):

$$-\frac{1}{4 \sqrt{2} f \sqrt{(a+b+(a-b) \operatorname{Cos}[2 (e+f x)]) \operatorname{Sec}[e+f x]^2}}$$
$$\Big(3 a^2-4 a b-3 b^2+a^2 \operatorname{Cos}[4 (e+f x)]-2 a b \operatorname{Cos}[4 (e+f x)]+b^2 \operatorname{Cos}[4 (e+f x)]+3 \sqrt{2} a \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]}$$
$$\operatorname{Log}\left[\sqrt{1+\operatorname{Cos}[2 (e+f x)]}\right]-3 \sqrt{2} b^{3/2} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]} \operatorname{Log}\left[\sqrt{1+\operatorname{Cos}[2 (e+f x)]}\right]-$$
$$3 \sqrt{2} a \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]} \operatorname{Log}\left[2 b+\sqrt{2} \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]}\right]+$$
$$3 \sqrt{2} b^{3/2} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]} \operatorname{Log}\left[2 b+\sqrt{2} \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]}\right]+$$
$$(a-b) \operatorname{Cos}[2 (e+f x)]\Big(4 a-2 b+3 \sqrt{2} \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]} \operatorname{Log}\left[\sqrt{1+\operatorname{Cos}[2 (e+f x)]}\right]-$$
$$3 \sqrt{2} \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]} \operatorname{Log}\left[2 b+\sqrt{2} \sqrt{b} \sqrt{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]}\right]\Big)\Big) \operatorname{Sec}[e+f x]^3$$

Problem 107: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Csc}[e+f x]\left(a+b \operatorname{Tan}[e+f x]^2\right)^{3/2} \, dx$$

Optimal (type 3, 127 leaves, 7 steps):

$$-\frac{a^{3/2} \operatorname{ArcTanh}\left[\frac{\sqrt{a} \operatorname{Sec}[e+f x]}{\sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}\right]}{f}+\frac{(3 a-b) \sqrt{b} \operatorname{ArcTanh}\left[\frac{\sqrt{b} \operatorname{Sec}[e+f x]}{\sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}\right]}{2 f}+\frac{b \operatorname{Sec}[e+f x] \sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}{2 f}$$

Result (type 3, 1113 leaves):

$$\frac{b \sqrt{\frac{a+b+a \operatorname{Cos}[2 (e+f x)]-b \operatorname{Cos}[2 (e+f x)]}{1+\operatorname{Cos}[2 (e+f x)]}} \operatorname{Sec}[e+f x]}{2 f}+\frac{1}{2 f}\Bigg(\Bigg(\left(2 a^2-3 a b+b^2\right)(1+\operatorname{Cos}[e+f x])$$

$$\sqrt{\frac{1+\operatorname{Cos}[2 (e+f x)]}{(1+\operatorname{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \operatorname{Cos}[2 (e+f x)]}{1+\operatorname{Cos}[2 (e+f x)]}}\Bigg(-\frac{\operatorname{Log}\left[\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}-\frac{2 \operatorname{Log}\left[1-\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Big/$$

$$\left(4\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\left(\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\right.$$

$$\left.\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)+$$

$$\left(\left(2\,a^2+3\,a\,b-b^2\right)(1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\right.$$

$$\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2 b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]-$$

$$\left.\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

- **Problem 108: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Csc}[e+f x]^3\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 167 leaves, 8 steps):

$$-\frac{\sqrt{a}\,(a+3 b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\mathrm{Sec}[e+f x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f x]^2}}\right]}{2 f}+\frac{\sqrt{b}\,(3 a+b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Sec}[e+f x]}{\sqrt{a-b+b\,\mathrm{Sec}[e+f x]^2}}\right]}{2 f}+$$

$$\frac{b\,\mathrm{Sec}[e+f x]\sqrt{a-b+b\,\mathrm{Sec}[e+f x]^2}}{f}-\frac{\mathrm{Cot}[e+f x]\,\mathrm{Csc}[e+f x]\left(a-b+b\,\mathrm{Sec}[e+f x]^2\right)^{3/2}}{2 f}$$

Result (type 3, 1124 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2(e+f x)]-b\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}\left(-\frac{1}{2}a\,\mathrm{Cot}[e+f x]\,\mathrm{Csc}[e+f x]+\frac{1}{2}b\,\mathrm{Sec}[e+f x]\right)}{f}+\frac{1}{2 f}$$

$$\Bigg(\bigg(\left(a^2-b^2\right)(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\Bigg(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]}{\sqrt{b}}\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\bigg)\Bigg/\bigg(4\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}$$

$$\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\left(\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^3\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\bigg)+$$

$$\bigg(\left(a^2+6\,a\,b+b^2\right)(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\Bigg(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2 b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

- **Problem 109: Result more than twice size of optimal antiderivative.**

$$\int \text{Csc}[e+f x]^5\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 223 leaves, 9 steps):

$$-\frac{3\left(a^2+6 a b+b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{8\sqrt{a}\,f}+\frac{3\sqrt{b}\,(a+b)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2 f}+\frac{3(a+3 b)\,\text{Sec}[e+f x]\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{8 f}-$$

$$\frac{3(a+b)\,\text{Csc}[e+f x]^2\,\text{Sec}[e+f x]\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{8 f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]^3\left(a-b+b\,\text{Sec}[e+f x]^2\right)^{3/2}}{4 f}$$

Result (type 3, 1163 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\frac{1}{8}(-3 a\,\text{Cos}[e+f x]-5 b\,\text{Cos}[e+f x])\,\text{Csc}[e+f x]^2-\frac{1}{4}a\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]^3+\frac{1}{2}b\,\text{Sec}[e+f x]\right)+$$

$$\frac{1}{8f}3\Bigg(\Bigg(\left(a^2+2ab-3b^2\right)(1+\text{Cos}[e+fx])\sqrt{\frac{1+\text{Cos}[2(e+fx)]}{(1+\text{Cos}[e+fx])^2}}$$

$$\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\Bigg(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]}{\sqrt{a}}-\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]+$$

$$\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{b}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]}{\sqrt{b}}\Bigg)\text{Tan}\left[\frac{1}{2}(e+fx)\right]$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\Bigg)\Big/\Bigg(4\sqrt{a+b+(a-b)\text{Cos}[2(e+fx)]}$$

$$\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\left(\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right)\sqrt{\frac{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)+$$

$$\Bigg(\left(a^2+10ab+5b^2\right)(1+\text{Cos}[e+fx])\sqrt{\frac{1+\text{Cos}[2(e+fx)]}{(1+\text{Cos}[e+fx])^2}}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}$$

$$\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}+\frac{2 \text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+\frac{1}{\sqrt{a}}\right.$$

$$\text{Log}\left[a-a \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2 b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]-$$

$$\left.\frac{2 \text{Log}\left[b+b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b} \sqrt{4 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}} \Bigg/$$

$$\left(4 \sqrt{a+b+(a-b) \text{Cos}[2(e+f x)]} \sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2} \sqrt{4 b \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

- **Problem 110: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f x]^4\left(a+b \text{Tan}[e+f x]^2\right)^{3/2} dx$$

Optimal (type 3, 222 leaves, 9 steps):

$$\frac{3\left(a^2-8 a b+8 b^2\right) \text{ArcTan}\left[\frac{\sqrt{a-b} \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{8 \sqrt{a-b} f}+\frac{3(a-2 b) \sqrt{b} \text{ArcTanh}\left[\frac{\sqrt{b} \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{2 f}-\frac{3(a-4 b) \text{Tan}[e+f x] \sqrt{a+b \text{Tan}[e+f x]^2}}{8 f}+$$

$$\frac{3(a-2 b) \text{Sin}[e+f x]^2 \text{Tan}[e+f x] \sqrt{a+b \text{Tan}[e+f x]^2}}{8 f}-\frac{\text{Cos}[e+f x] \text{Sin}[e+f x]^3\left(a+b \text{Tan}[e+f x]^2\right)^{3/2}}{4 f}$$

Result (type 4, 765 leaves):

$$\frac{1}{8\,f}\,3\left(-\left(b\left(a^2-8\,b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\left(a^2-8\,a\,b+8\,b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$1\Big]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{1}{16}\,(4\,a-9\,b)\,\mathrm{Sin}[2\,(e+f\,x)]+\frac{1}{32}\,(a-b)\,\mathrm{Sin}[4\,(e+f\,x)]+\frac{1}{2}\,b\,\mathrm{Tan}[e+f\,x]\right)$$

- **Problem 111: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\mathrm{Sin}[e+f\,x]^2\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 165 leaves, 8 steps):

$$\frac{(a-4\,b)\,\sqrt{a-b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{2\,f}+\frac{(3\,a-4\,b)\,\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{2\,f}+$$

$$\frac{b\,\mathrm{Tan}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}-\frac{\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}{2\,f}$$

Result (type 4, 749 leaves):

$$\frac{1}{2\,f}\Bigg(-\Bigg(b\,\left(a^2+a\,b-4\,b^2\right)\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\right)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\left(a^2-5\,a\,b+4\,b^2\right)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{1}{4}\,(a-b)\,\text{Sin}[2\,(e+f\,x)]+\frac{1}{2}\,b\,\text{Tan}[e+f\,x]\right)}{f}$$

- **Problem 112: Result unnecessarily involves imaginary or complex numbers.**

$$\int\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 125 leaves, 7 steps):

$$\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}+\frac{(3\,a-2\,b)\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,f}+\frac{b\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{2\,f}$$

Result (type 3, 233 leaves):

$$\frac{1}{2\,f}\left(-i\,(a-b)^{3/2}\,\text{Log}\left[-\frac{4\,i\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{(a-b)^{5/2}\,(i+\text{Tan}[e+f\,x])}\right]+\right.$$

$$i\,(a-b)^{3/2}\,\text{Log}\left[\frac{4\,i\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{(a-b)^{5/2}\,(-i+\text{Tan}[e+f\,x])}\right]+$$

$$\left.(3\,a-2\,b)\,\sqrt{b}\,\text{Log}\left[b\,\text{Tan}[e+f\,x]+\sqrt{b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right]+b\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)$$

- **Problem 113: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Csc}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 100 leaves, 5 steps):

$$\frac{3\,a\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,f}+\frac{3\,b\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{2\,f}-\frac{\text{Cot}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{f}$$

Result (type 4, 220 leaves):

$$\left(\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]^3\,\left(-6\,a^2-a\,b+3\,b^2-4\,\left(2\,a^2+b^2\right)\,\text{Cos}[2\,(e+f\,x)]-2\,a^2\,\text{Cos}[4\,(e+f\,x)]+a\,b\,\text{Cos}[4\,(e+f\,x)]+b^2\,\text{Cos}[4\,(e+f\,x)]+\right.\right.$$

$$\left.\left.3\,\sqrt{2}\,a\,b\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[2\,(e+f\,x)]^2\right)\right)\Big/$$

$$\left(8\,\sqrt{2}\,f\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}\right)$$

- **Problem 114: Result unnecessarily involves higher level functions.**

$$\int \text{Csc}[e+f\,x]^4\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 162 leaves, 6 steps):

$$\frac{\sqrt{b}\,(3a+2b)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{2f}+\frac{b\,(3a+2b)\,\text{Tan}[e+fx]\,\sqrt{a+b\,\text{Tan}[e+fx]^2}}{2af}-\frac{(3a+2b)\,\text{Cot}[e+fx]\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}{3af}-\frac{\text{Cot}[e+fx]^3\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{5/2}}{3af}$$

Result (type 4, 177 leaves):

$$\frac{1}{6\sqrt{2}\,f}\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+fx)])\,\text{Sec}[e+fx]^2}\left(-4\,(a+2b)\,\text{Cot}[e+fx]-2a\,\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2+\frac{3\sqrt{2}\,(3a+2b)\,\text{Cot}[e+fx]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+fx)])\,\text{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]}{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+fx)])\,\text{Csc}[e+fx]^2}{b}}}+3b\,\text{Tan}[e+fx]\right)$$

Problem 115: Result unnecessarily involves higher level functions.

$$\int \text{Csc}[e+fx]^6\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}\,dx$$

Optimal (type 3, 196 leaves, 7 steps):

$$\frac{\sqrt{b}\,(3a+4b)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{2f}+\frac{b\,(3a+4b)\,\text{Tan}[e+fx]\,\sqrt{a+b\,\text{Tan}[e+fx]^2}}{2af}-\frac{(3a+4b)\,\text{Cot}[e+fx]\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}}{3af}-\frac{2\,\text{Cot}[e+fx]^3\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{5/2}}{3af}-\frac{\text{Cot}[e+fx]^5\,\left(a+b\,\text{Tan}[e+fx]^2\right)^{5/2}}{5af}$$

Result (type 4, 213 leaves):

$$\frac{1}{30\sqrt{2}\,f}\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}$$

$$\left(-\frac{2\,(8\,a^2+34\,a\,b+3\,b^2)\,\text{Cot}[e+f\,x]}{a}-4\,(2\,a+3\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2-6\,a\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^4+\right.$$

$$\left.\frac{15\sqrt{2}\,(3\,a+4\,b)\,\text{Cot}[e+f\,x]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]}{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}+15\,b\,\text{Tan}[e+f\,x]\right)$$

- **Problem 119: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Csc}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 42 leaves, 3 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{\sqrt{a}\,f}$$

Result (type 3, 251 leaves):

$$\frac{1}{2\sqrt{a}\,f\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}}$$

$$\text{Cos}[e+f\,x]\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-(a-2\,b)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{a\,\text{Cos}[e+f\,x]^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4+4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right]-\right.$$

$$\left.\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{a\,\text{Cos}[e+f\,x]^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4+4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right]\right)$$

$$\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}$$

- **Problem 120: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Csc}[e+f x]^3}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 91 leaves, 5 steps):

$$-\frac{(a-b)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f x]}{\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}\right]}{2\,a^{3/2}\,f}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]\,\sqrt{a-b+b\,\text{Sec}[e+f x]^2}}{2\,a\,f}$$

Result (type 3, 1101 leaves):

$$-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\,\text{Cot}[e+f x]\,\text{Csc}[e+f x]}{2\,a\,f}+\frac{1}{2\,a\,f}$$

$$(a-b)\left(\left((1+\text{Cos}[e+f x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right]}{\sqrt{b}}+\right.\right.\right.$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\right]+$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\right)\Bigg/\left(4\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right.$$

$$\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\left(\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^3\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}+$$

$$\Bigg((1+\mathrm{Cos}[e+fx])\sqrt{\frac{1+\mathrm{Cos}[2(e+fx)]}{(1+\mathrm{Cos}[e+fx])^2}}\sqrt{\frac{a+b+(a-b)\mathrm{Cos}[2(e+fx)]}{1+\mathrm{Cos}[2(e+fx)]}}\Bigg(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]-$$

$$\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]}{\sqrt{b}}\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\mathrm{Cos}[2(e+fx)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)$$

- **Problem 121: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Csc}[e+fx]^5}{\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}\,dx$$

Optimal (type 3, 143 leaves, 6 steps):

$$-\frac{3\,(a-b)^2\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{5/2}\,f}-\frac{(5\,a-3\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{8\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}{4\,a\,f}$$

Result (type 3, 1140 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{3\,(a\,\text{Cos}[e+f\,x]-b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^2}{8\,a^2}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3}{4\,a}\right)}{f}+\frac{1}{8\,a^2\,f}$$

$$3\,(a-b)^2\left(\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.\right.\right.$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Big/\left(4\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\left(\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)+$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(-\frac{\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\text{Log}\left[1-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]}{\sqrt{b}}+\right.\right.$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)$$

- **Problem 122: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f x]^4}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 146 leaves, 6 steps):

$$\frac{3\,a^2\,\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{8\,(a-b)^{5/2}\,f}-\frac{(5\,a-2\,b)\,\text{Cos}[e+f x]\,\text{Sin}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{8\,(a-b)^2\,f}+\frac{\text{Cos}[e+f x]^3\,\text{Sin}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{4\,(a-b)\,f}$$

Result (type 4, 751 leaves):

$$\frac{1}{8\,(a-b)^2 f} 3\,a^2 \left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$1\Big]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{(4\,a-b)\,\mathrm{Sin}[2\,(e+f\,x)]}{16\,(a-b)^2}+\frac{\mathrm{Sin}[4\,(e+f\,x)]}{32\,(a-b)}\right)}{f}$$

Problem 123: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Sin}[e+f\,x]^2}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 93 leaves, 5 steps):

$$\frac{a\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{2\,(a-b)^{3/2}\,f}-\frac{\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{2\,(a-b)\,f}$$

Result (type 4, 721 leaves):

$$\frac{1}{2\,(a-b)\,f}a\Bigg(-\Bigg(b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)-\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\mathrm{Sin}[2\,(e+f\,x)]}{4\,(a-b)\,f}$$

- **Problem 124: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 46 leaves, 3 steps) :

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}$$

Result (type 3, 151 leaves) :

$$\frac{i\left(-\text{Log}\left[-\frac{4\,i\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,\left(i+\text{Tan}[e+f\,x]\right)}\right]+\text{Log}\left[\frac{4\,i\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,\left(-i+\text{Tan}[e+f\,x]\right)}\right]\right)}{2\,\sqrt{a-b}\,f}$$

Problem 131: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 84 leaves, 4 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{a^{3/2}\,f}-\frac{b\,\text{Sec}[e+f\,x]}{a\,(a-b)\,f\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}$$

Result (type 3, 309 leaves):

$$-\frac{\sqrt{2}\,b\,\text{Sec}[e+f\,x]}{a\,(a-b)\,f\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}}+\frac{1}{2\,a^{3/2}\,f\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}}$$

$$\text{Cos}[e+f\,x]\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-(a-2\,b)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{a\,\text{Cos}[e+f\,x]^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4+4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right]-\right.$$

$$\left.\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{a\,\text{Cos}[e+f\,x]^2\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4+4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2}\right]\right)$$

$$\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}$$

Problem 132: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Csc}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 127 leaves, 6 steps):

$$-\frac{(a-3\,b)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{2\,a^{5/2}\,f}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]}{2\,a\,f\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}-\frac{3\,b\,\text{Sec}[e+f\,x]}{2\,a^2\,f\,\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}$$

Result (type 3, 1141 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{2\,b\,\mathrm{Cos}[e+f\,x]}{a^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{2\,a^2}\right)}{f}+\frac{1}{2\,a^2\,f}$$

$$(a-3\,b)\left(\left((1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.\right.\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\left.\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Big/\left(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\left(\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)+$$

$$\left((1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)$$

Problem 133: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f\,x]^5}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 187 leaves, 7 steps):

$$-\frac{3(a-5\,b)(a-b)\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{7/2}\,f}-\frac{5(a-b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]}{8\,a^2\,f\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}-\frac{\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]}{4\,a\,f\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}-\frac{(13\,a-15\,b)\,b\,\text{Sec}[e+f\,x]}{8\,a^3\,f\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}$$

Result (type 3, 1196 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)]}{1+\text{Cos}[2(e+f\,x)]}}$$

$$\left(-\frac{2\left(a\,b\,\text{Cos}[e+f\,x]-b^2\,\text{Cos}[e+f\,x]\right)}{a^3\left(a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)]\right)}+\frac{\left(-3\,a\,\text{Cos}[e+f\,x]+7\,b\,\text{Cos}[e+f\,x]\right)\text{Csc}[e+f\,x]^2}{8\,a^3}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^3}{4\,a^2}\right)+\frac{1}{8\,a^3\,f}$$

$$3(a-5\,b)(a-b)$$

$$\Bigg(\Bigg(\Bigg((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(-\frac{\mathrm{Log}\big[\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\big[1-\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{2\,\mathrm{Log}\Big[b+b\,\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big)^2}\,\Big]}{\sqrt{b}}\Bigg)\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]$$

$$\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Bigg)\Bigg/\Bigg(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big(\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^3\Big)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2+a\,\big(-1+\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big)^2}{\big(1+\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big)^2}}\,\Bigg)+$$

$$\Bigg((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(-\frac{\mathrm{Log}\big[\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\big[1-\mathrm{Tan}\big[\tfrac{1}{2}\,(e+f\,x)\big]^2\big]}{\sqrt{b}}+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)$$

- **Problem 134: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 187 leaves, 7 steps):

$$\frac{3\,a\,(a+4\,b)\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{7/2}\,f}-\frac{5\,a\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{8\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}+\frac{\text{Cos}[e+f\,x]^3\,\text{Sin}[e+f\,x]}{4\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}-\frac{b\,(13\,a+2\,b)\,\text{Tan}[e+f\,x]}{8\,(a-b)^3\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 799 leaves):

$$\frac{1}{8\,(a-b)^3\,f}3\,a\,(a+4\,b)\left(-\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f\,x)]}{1+\text{Cos}[2(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Bigg/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+f\,x)])\right)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{(4\,a+3\,b)\,\text{Sin}[2\,(e+f\,x)]}{16\,(a-b)^3}-\frac{a\,b\,\text{Sin}[2\,(e+f\,x)]}{(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\frac{\text{Sin}[4\,(e+f\,x)]}{32\,(a-b)^2}\right)}{f}$$

- **Problem 135: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 134 leaves, 6 steps) :

$$\frac{(a+2b)\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+fx]}{\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}\right]}{2\,(a-b)^{5/2}\,f}-\frac{\mathrm{Cos}[e+fx]\,\mathrm{Sin}[e+fx]}{2\,(a-b)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}-\frac{3\,b\,\mathrm{Tan}[e+fx]}{2\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}$$

Result (type 4, 282 leaves):

$$-\frac{1}{4\sqrt{2}\,(a-b)^3\,f\,\sqrt{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])\,\mathrm{Sec}[e+fx]^2}}\Bigg((a-b)\,(a+5b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])-\sqrt{2}\,\left(a^2+a\,b-2\,b^2\right)\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])\,\mathrm{Csc}[e+fx]^2}{b}}$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])\,\mathrm{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]+\sqrt{2}\,a\,(a+2b)\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])\,\mathrm{Csc}[e+fx]^2}{b}}$$

$$\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+fx)])\,\mathrm{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\Bigg)\,\mathrm{Sec}[e+fx]^2\,\mathrm{Sin}[2\,(e+fx)]$$

- **Problem 136: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \frac{1}{\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+fx]}{\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}\right]}{(a-b)^{3/2}\,f}-\frac{b\,\mathrm{Tan}[e+fx]}{a\,(a-b)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}$$

Result (type 3, 189 leaves):

$$-\frac{1}{2f}\left(\frac{i\left(\mathrm{Log}\left[-\frac{4\,i\,\sqrt{a-b}\,\left(a-i\,b\,\mathrm{Tan}[e+fx]+\sqrt{a-b}\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}\right)}{i+\mathrm{Tan}[e+fx]}\right]-\mathrm{Log}\left[\frac{4\,i\,\sqrt{a-b}\,\left(a+i\,b\,\mathrm{Tan}[e+fx]+\sqrt{a-b}\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}\right)}{-i+\mathrm{Tan}[e+fx]}\right]\right)}{(a-b)^{3/2}}+\frac{2\,b\,\mathrm{Tan}[e+fx]}{a\,(a-b)\,\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}\right)$$

Problem 140: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Sin}[e+f x]^5}{\left(a+b \operatorname{Tan}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 3, 248 leaves, 6 steps):

$$-\frac{\left(5 a^2+10 a b+b^2\right) \operatorname{Cos}[e+f x]}{5 (a-b)^3 f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}+\frac{2 (5 a-b) \operatorname{Cos}[e+f x]^3}{15 (a-b)^2 f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{\operatorname{Cos}[e+f x]^5}{5 (a-b) f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{4 b \left(5 a^2+10 a b+b^2\right) \operatorname{Sec}[e+f x]}{15 (a-b)^4 f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{8 b \left(5 a^2+10 a b+b^2\right) \operatorname{Sec}[e+f x]}{15 (a-b)^5 f \sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}$$

Result (type 3, 1117 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\Bigg(\frac{7\,(a+b)\,\text{Cos}[e+f\,x]}{60\,(a-b)^4}+\frac{4\,a^2\,b^2\,\text{Cos}[e+f\,x]}{3\,(a-b)^5\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-$$

$$\frac{4\,(a^2\,b\,\text{Cos}[e+f\,x]+a\,b^2\,\text{Cos}[e+f\,x])}{(a-b)^5\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\frac{(25\,a+31\,b)\,\text{Cos}[3\,(e+f\,x)]}{240\,(a-b)^4}-\frac{\text{Cos}[5\,(e+f\,x)]}{80\,(a-b)^3}\Bigg)+\frac{1}{240\,(a-b)^4\,f}$$

$$(89\,a^2+406\,a\,b+89\,b^2)\,\Bigg(-\Bigg((1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\Big(\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]-\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\Big]\Big)\,\text{Sin}[e+f\,x]$$

$$\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/\Big(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Big)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Big(\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\;\Big(\text{Log}\Big[\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]-$$

$$\text{Log}\Big[2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\Big]\Big)\,\text{Sin}[e+f\,x]\,\text{Sin}[2\,(e+f\,x)]\Big)\Big/$$

$$\Big(\sqrt{2}\,\sqrt{b}\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\;\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Big)-$$

$$\Big(4\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}$$

$$\Big(\sqrt{b}\,(b\,(-1+\text{Cos}[2\,(e+f\,x)])-a\,(1+\text{Cos}[2\,(e+f\,x)]))+(a-b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}\;\text{Log}\Big[$$

$$\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\Big]+(-a+b)\,\sqrt{-2\,b\,(-1+\text{Cos}[2\,(e+f\,x)])+2\,a\,(1+\text{Cos}[2\,(e+f\,x)])}\;\text{Log}\Big[$$

$$2\,b+\sqrt{2}\,\sqrt{b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\Big]\Big)\,\text{Sin}[e+f\,x]^3\,\text{Sin}[2\,(e+f\,x)]\Big)\Big/$$

$$\Big(3\,(a-b)\,\sqrt{b}\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\;\sqrt{-b\,(-1+\text{Cos}[2\,(e+f\,x)])+a\,(1+\text{Cos}[2\,(e+f\,x)])}\Big)\Bigg)\Bigg)$$

- **Problem 141: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f\,x]^3}{(a+b\,\text{Tan}[e+f\,x]^2)^{5/2}}\,dx$$

Optimal (type 3, 168 leaves, 5 steps):

$$-\frac{(a+b)\cos[e+f x]}{(a-b)^2 f\left(a-b+b\sec[e+f x]^2\right)^{3/2}}+\frac{\cos[e+f x]^3}{3(a-b) f\left(a-b+b\sec[e+f x]^2\right)^{3/2}}-\frac{4 b(a+b)\sec[e+f x]}{3(a-b)^3 f\left(a-b+b\sec[e+f x]^2\right)^{3/2}}-\frac{8 b(a+b)\sec[e+f x]}{3(a-b)^4 f\sqrt{a-b+b\sec[e+f x]^2}}$$

Result (type 3, 1076 leaves) :

$$\frac{1}{f}\sqrt{\frac{a+b+a\cos[2(e+f x)]-b\cos[2(e+f x)]}{1+\cos[2(e+f x)]}}\left(\frac{\cos[e+f x]}{12(a-b)^3}+\frac{4 a b^2\cos[e+f x]}{3(a-b)^4(a+b+a\cos[2(e+f x)]-b\cos[2(e+f x)])^2}-\frac{2\left(2 a b\cos[e+f x]+b^2\cos[e+f x]\right)}{(a-b)^4(a+b+a\cos[2(e+f x)]-b\cos[2(e+f x)])}+\frac{\cos[3(e+f x)]}{12(a-b)^3}\right)+$$

$$\frac{1}{12(a-b)^3 f}(5a+11b)\left(-\left((1+\cos[2(e+f x)])\sqrt{\frac{a+b+(a-b)\cos[2(e+f x)]}{1+\cos[2(e+f x)]}}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\right.\right.$$

$$\left(\operatorname{Log}\left[\sqrt{1+\cos[2(e+f x)]}\right]-\operatorname{Log}\left[2b+\sqrt{2}\sqrt{b}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\right]\right)\sin[e+f x]$$

$$\left.\sin[2(e+f x)]\right)\Big/\left(\sqrt{2}\sqrt{b}\sqrt{-(-1+\cos[2(e+f x)])(1+\cos[2(e+f x)])}\,(a+b+(a-b)\cos[2(e+f x)])\sqrt{1-\cos[2(e+f x)]^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\cos[2(e+f x)]}}3\sqrt{1+\cos[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\cos[2(e+f x)]}{1+\cos[2(e+f x)]}}$$

$$\left(\left(\sqrt{1+\cos[2(e+f x)]}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\left(\operatorname{Log}\left[\sqrt{1+\cos[2(e+f x)]}\right]-\right.\right.\right.$$

$$\left.\left.\operatorname{Log}\left[2b+\sqrt{2}\sqrt{b}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\right]\right)\sin[e+f x]\sin[2(e+f x)]\right)\Big/$$

$$\left(\sqrt{2}\sqrt{b}\sqrt{-(-1+\cos[2(e+f x)])(1+\cos[2(e+f x)])}\sqrt{a+b+(a-b)\cos[2(e+f x)]}\sqrt{1-\cos[2(e+f x)]^2}\right)-$$

$$\left(4\sqrt{1+\cos[2(e+f x)]}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\right.$$

$$\left(\sqrt{b}\,(b(-1+\cos[2(e+f x)])-a(1+\cos[2(e+f x)]))\right)+(a-b)\sqrt{-2b(-1+\cos[2(e+f x)])+2a(1+\cos[2(e+f x)])}\operatorname{Log}\Big[$$

$$\sqrt{1+\cos[2(e+f x)]}\Big]+(-a+b)\sqrt{-2b(-1+\cos[2(e+f x)])+2a(1+\cos[2(e+f x)])}\operatorname{Log}\Big[$$

$$\left.\left.2b+\sqrt{2}\sqrt{b}\sqrt{2b+a(1+\cos[2(e+f x)])-b(1+\cos[2(e+f x)])}\Big]\right)\sin[e+f x]^3\sin[2(e+f x)]\right)\Big/$$

$$\left(3(a-b)\sqrt{b}\,(1-\cos[2(e+f x)])\sqrt{-(-1+\cos[2(e+f x)])(1+\cos[2(e+f x)])}\sqrt{a+b+(a-b)\cos[2(e+f x)]}\right.$$

$$\left.\left.\left.\sqrt{1-\cos[2(e+f x)]^2}\sqrt{-b(-1+\cos[2(e+f x)])+a(1+\cos[2(e+f x)])}\right)\right)\right)$$

Problem 143: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[e+f x]}{\left(a+b \operatorname{Tan}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 3, 136 leaves, 6 steps):

$$-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a} \operatorname{Sec}[e+f x]}{\sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}\right]}{a^{5/2} f}-\frac{b \operatorname{Sec}[e+f x]}{3 a (a-b) f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{(5 a-3 b) b \operatorname{Sec}[e+f x]}{3 a^2 (a-b)^2 f \sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}$$

Result (type 3, 330 leaves):

$$\frac{1}{6 a^{5/2} f} \operatorname{Cos}[e+f x] \left(-\frac{2 \sqrt{2} \sqrt{a} b \left(6 a^2+a b-3 b^2+3 \left(2 a^2-3 a b+b^2\right) \operatorname{Cos}[2 (e+f x)]\right)}{(a-b)^2 (a+b+(a-b) \operatorname{Cos}[2 (e+f x)])^2}+\right.$$
$$\left(3 \left(\operatorname{Log}\left[\operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]-\operatorname{Log}\left[a-(a-2 b) \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{a \operatorname{Cos}[e+f x]^2 \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^4+4 b \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2}\right]-\right.\right.$$
$$\left.\operatorname{Log}\left[2 b+a \left(-1+\operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{a \operatorname{Cos}[e+f x]^2 \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^4+4 b \operatorname{Tan}\left[\frac{1}{2} (e+f x)\right]^2}\right]\right) \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^2\Bigg) \Bigg/$$
$$\left.\left.\left(\sqrt{(a+b+(a-b) \operatorname{Cos}[2 (e+f x)]) \operatorname{Sec}\left[\frac{1}{2} (e+f x)\right]^4}\right)\right) \sqrt{(a+b+(a-b) \operatorname{Cos}[2 (e+f x)]) \operatorname{Sec}[e+f x]^2}$$

Problem 144: Result more than twice size of optimal antiderivative.

$$\int \frac{\operatorname{Csc}[e+f x]^3}{\left(a+b \operatorname{Tan}[e+f x]^2\right)^{5/2}} \, dx$$

Optimal (type 3, 177 leaves, 7 steps):

$$-\frac{(a-5 b) \operatorname{ArcTanh}\left[\frac{\sqrt{a} \operatorname{Sec}[e+f x]}{\sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}\right]}{2 a^{7/2} f}-\frac{\operatorname{Cot}[e+f x] \operatorname{Csc}[e+f x]}{2 a f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{5 b \operatorname{Sec}[e+f x]}{6 a^2 f \left(a-b+b \operatorname{Sec}[e+f x]^2\right)^{3/2}}-\frac{(13 a-15 b) b \operatorname{Sec}[e+f x]}{6 a^3 (a-b) f \sqrt{a-b+b \operatorname{Sec}[e+f x]^2}}$$

Result (type 3, 1190 leaves):

$$\frac{1}{f} \sqrt{\frac{a+b+a \operatorname{Cos}[2 (e+f x)]-b \operatorname{Cos}[2 (e+f x)]}{1+\operatorname{Cos}[2 (e+f x)]}} \left(\frac{4 b^2 \operatorname{Cos}[e+f x]}{3 a^2 (a-b) (a+b+a \operatorname{Cos}[2 (e+f x)]-b \operatorname{Cos}[2 (e+f x)])^2}-\right.$$

$$\frac{4\,b\,\mathrm{Cos}[e+f\,x]}{a^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]}{2\,a^3}\Bigg)+\frac{1}{2\,a^3\,f}$$

$$(a-5\,b)\left(\left((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.\right.\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\left.\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]}{\sqrt{b}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg/\left(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right.$$

$$\left.\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\left(\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)+$$

$$\left((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)$$

Problem 145: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Csc}[e+f\,x]^5}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 237 leaves, 8 steps):

$$-\frac{\left(3\,a^2-30\,a\,b+35\,b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a}\,\text{Sec}[e+f\,x]}{\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}\right]}{8\,a^{9/2}\,f}-\frac{(5\,a-7\,b)\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]}{8\,a^2\,f\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-$$

$$\frac{\text{Cot}[e+f\,x]^3\,\text{Csc}[e+f\,x]}{4\,a\,f\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-\frac{(23\,a-35\,b)\,b\,\text{Sec}[e+f\,x]}{24\,a^3\,f\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^{3/2}}-\frac{5\,(11\,a-21\,b)\,b\,\text{Sec}[e+f\,x]}{24\,a^4\,f\sqrt{a-b+b\,\text{Sec}[e+f\,x]^2}}$$

Result (type 3, 1244 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)]}{1+\text{Cos}[2(e+f\,x)]}}$$

$$\left(\frac{4\,b^2\,\text{Cos}[e+f\,x]}{3\,a^3\,(a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)])^2}-\frac{2\left(2\,a\,b\,\text{Cos}[e+f\,x]-3\,b^2\,\text{Cos}[e+f\,x]\right)}{a^4\,(a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)])}+\right.$$

$$\frac{(-3\,a\,\mathrm{Cos}[e+f\,x]+11\,b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]^2}{8\,a^4}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^3}{4\,a^3}\Bigg)+\frac{1}{8\,a^4\,f}\left(3\,a^2-30\,a\,b+35\,b^2\right)$$

$$\Bigg(\Bigg((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}-\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\left.\frac{2\,\mathrm{Log}\left[b+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Bigg)\Bigg/\Bigg(4\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}$$

$$\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\left(\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^3\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\Bigg)+$$

$$\Bigg((1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{a}}+\frac{2\,\mathrm{Log}\left[1-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]}{\sqrt{b}}+\right.$$

$$\frac{1}{\sqrt{a}}\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\frac{1}{\sqrt{a}}\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]-$$

$$\left.\frac{2\,\text{Log}\left[b+b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]}{\sqrt{b}}\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)$$

- **Problem 146: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 246 leaves, 8 steps):

$$\frac{\left(3\,a^2+24\,a\,b+8\,b^2\right)\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,(a-b)^{9/2}\,f}-\frac{(5\,a+2\,b)\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{8\,(a-b)^2\,f\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}+$$

$$\frac{\text{Cos}[e+f\,x]^3\,\text{Sin}[e+f\,x]}{4\,(a-b)\,f\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{b\,(23\,a+12\,b)\,\text{Tan}[e+f\,x]}{24\,(a-b)^3\,f\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{5\,b\,(11\,a+10\,b)\,\text{Tan}[e+f\,x]}{24\,(a-b)^4\,f\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 875 leaves):

$$\frac{1}{8\,(a-b)^4\,f}\left(3\,a^2+24\,a\,b+8\,b^2\right)\left(-\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{(4\,a+7\,b)\,\text{Sin}[2\,(e+f\,x)]}{16\,(a-b)^4}+\frac{2\,a\,b^2\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^4\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-\frac{2\,\left(3\,a\,b\,\text{Sin}[2\,(e+f\,x)]+2\,b^2\,\text{Sin}[2\,(e+f\,x)]\right)}{3\,(a-b)^4\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}+\frac{\text{Sin}[4\,(e+f\,x)]}{32\,(a-b)^3}\right)$$

- **Problem 147: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Sin}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 181 leaves, 7 steps):

$$\frac{(a+4\,b)\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,(a-b)^{7/2}\,f}-\frac{\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]}{2\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{5\,b\,\text{Tan}[e+f\,x]}{6\,(a-b)^2\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{b\,(13\,a+2\,b)\,\text{Tan}[e+f\,x]}{6\,a\,(a-b)^3\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 841 leaves):

$$\frac{1}{2\,(a-b)^3\,f}(a+4\,b)\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\ \sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\ \mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\ \mathrm{Csc}[2\,(e+f\,x)]\ \mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)+\frac{1}{f}$$

$$\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\ \left(-\frac{\mathrm{Sin}[2\,(e+f\,x)]}{4\,(a-b)^3}+\frac{2\,b^2\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}+\right.$$

$$\left.\frac{-6\,a\,b\,\mathrm{Sin}[2\,(e+f\,x)]-b^2\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,a\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 148: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 134 leaves, 6 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\text{Tan}[e+f\,x]}{3\,a\,(a-b)\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(5\,a-2\,b)\,b\,\text{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 381 leaves):

$$\frac{i\,\text{Log}\left[\frac{4\,\left(i\,a^3-2\,i\,a^2\,b+i\,a\,b^2-a^2\,b\,\text{Tan}[e+f\,x]+2\,a\,b^2\,\text{Tan}[e+f\,x]-b^3\,\text{Tan}[e+f\,x]\right)}{\sqrt{a-b}\;(-i+\text{Tan}[e+f\,x])}+\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{-i+\text{Tan}[e+f\,x]}\right]}{2\,(a-b)^{5/2}\,f}-$$

$$\frac{i\,\text{Log}\left[\frac{4\,\left(-i\,a^3+2\,i\,a^2\,b-i\,a\,b^2-a^2\,b\,\text{Tan}[e+f\,x]+2\,a\,b^2\,\text{Tan}[e+f\,x]-b^3\,\text{Tan}[e+f\,x]\right)}{\sqrt{a-b}\;(i+\text{Tan}[e+f\,x])}-\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{i+\text{Tan}[e+f\,x]}\right]}{2\,(a-b)^{5/2}\,f}+$$

$$\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,\left(-\frac{b\,\text{Tan}[e+f\,x]}{3\,a\,(a-b)\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^2}-\frac{(5\,a-2\,b)\,b\,\text{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)}\right)}{f}$$

- **Problem 152: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Sin}[e+f\,x])^m\,\left(b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 92 leaves, 3 steps):

$$\frac{1}{f\,(1+m+2\,p)}$$

$$\left(\text{Cos}[e+f\,x]^2\right)^{\frac{1}{2}+p}\,\text{Hypergeometric2F1}\left[\frac{1}{2}\,(1+2\,p),\,\frac{1}{2}\,(1+m+2\,p),\,\frac{1}{2}\,(3+m+2\,p),\,\text{Sin}[e+f\,x]^2\right]\,(d\,\text{Sin}[e+f\,x])^m\,\text{Tan}[e+f\,x]\,\left(b\,\text{Tan}[e+f\,x]^2\right)^p$$

Result (type 6, 2363 leaves):

$$\left((3+m+2\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+m+2\,p),\,2\,p,\,1+m,\,\frac{1}{2}\,(3+m+2\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right.$$

$$\left.\text{Sin}[e+f\,x]^{1+m}\,(d\,\text{Sin}[e+f\,x])^m\,\text{Tan}[e+f\,x]^{2\,p}\,\left(b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$

$$\left(f\,(1+m+2\,p)\,\left((3+m+2\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+m+2\,p),\,2\,p,\,1+m,\,\frac{1}{2}\,(3+m+2\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$2\,\left((1+m)\,\text{AppellF1}\left[\frac{1}{2}\,(3+m+2\,p),\,2\,p,\,2+m,\,\frac{1}{2}\,(5+m+2\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.$$

$$\left.\left.2\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+m+2\,p),\,1+2\,p,\,1+m,\,\frac{1}{2}\,(5+m+2\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left(\left((1+m)\,(3+m+2\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+m+2\,p),\,2\,p,\,1+m,\,\frac{1}{2}\,(3+m+2\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]^m\right.\right.$$

$$\text{Tan}[e+f x]^{2p}\Big) \Big/ \Bigg((1+m+2p)\Bigg((3+m+2p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+2p),2p,1+m,\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$
$$2\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+2p),2p,2+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$
$$2p\,\text{AppellF1}\Big[\frac{1}{2}(3+m+2p),1+2p,1+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Bigg)\Bigg)+$$
$$\Bigg((3+m+2p)\,\text{Sin}[e+f x]^{1+m}\Bigg(-\frac{1}{3+m+2p}(1+m)(1+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),2p,2+m,1+\frac{1}{2}(3+m+2p),$$
$$\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3+m+2p}2p(1+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),$$
$$1+2p,1+m,1+\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Bigg)\text{Tan}[e+f x]^{2p}\Bigg)\Big/$$
$$\Bigg((1+m+2p)\Bigg((3+m+2p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+2p),2p,1+m,\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$
$$2\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+2p),2p,2+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$
$$2p\,\text{AppellF1}\Big[\frac{1}{2}(3+m+2p),1+2p,1+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Bigg)\Bigg)-$$
$$\Bigg((3+m+2p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+2p),2p,1+m,\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sin}[e+f x]^{1+m}$$
$$\Bigg(-2\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+2p),2p,2+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-2p\,\text{AppellF1}\Big[\frac{1}{2}$$
$$(3+m+2p),1+2p,1+m,\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+$$
$$(3+m+2p)\Big(-\frac{1}{3+m+2p}(1+m)(1+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),2p,2+m,1+\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3+m+2p}2p(1+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+2p),1+2p,1+$$
$$m,1+\frac{1}{2}(3+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)-2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2$$
$$\Big((1+m)\Big(-\frac{1}{5+m+2p}(2+m)(3+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+2p),2p,3+m,1+\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$
$$-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{5+m+2p}2p(3+m+2p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+2p),1+2p,$$
$$2+m,1+\frac{1}{2}(5+m+2p),\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)-2p\Big(-\frac{1}{5+m+2p}$$

$$(1+m)\,(3+m+2p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+m+2p),\,1+2p,\,2+m,\,1+\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+m+2p}(1+2p)\,(3+m+2p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+m+2p),\,2+2p,\,1+m,\right.$$
$$\left.1+\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\,\text{Tan}[e+fx]^{2p}\Bigg)\Bigg/$$
$$\Bigg((1+m+2p)\,\Bigg((3+m+2p)\,\text{AppellF1}\left[\frac{1}{2}(1+m+2p),\,2p,\,1+m,\,\frac{1}{2}(3+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$
$$2\Bigg((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+2p),\,2p,\,2+m,\,\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2p$$
$$\text{AppellF1}\left[\frac{1}{2}(3+m+2p),\,1+2p,\,1+m,\,\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2\Bigg)+$$
$$\Bigg(2p\,(3+m+2p)\,\text{AppellF1}\left[\frac{1}{2}(1+m+2p),\,2p,\,1+m,\,\frac{1}{2}(3+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$
$$\text{Sec}[e+fx]^2\,\text{Sin}[e+fx]^{1+m}\,\text{Tan}[e+fx]^{-1+2p}\Bigg)\Bigg/$$
$$\Bigg((1+m+2p)\,\Bigg((3+m+2p)\,\text{AppellF1}\left[\frac{1}{2}(1+m+2p),\,2p,\,1+m,\,\frac{1}{2}(3+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$
$$2\Bigg((1+m)\,\text{AppellF1}\left[\frac{1}{2}(3+m+2p),\,2p,\,2+m,\,\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$
$$2p\,\text{AppellF1}\left[\frac{1}{2}(3+m+2p),\,1+2p,\,1+m,\,\frac{1}{2}(5+m+2p),\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 153: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Sin}[e+fx])^m\,\left(a+b\,\text{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 121 leaves, 3 steps):

$$\frac{1}{f\,(1+m)}\text{AppellF1}\left[\frac{1+m}{2},\,\frac{2+m}{2},\,-p,\,\frac{3+m}{2},\,-\text{Tan}[e+fx]^2,\,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]$$
$$\left(\text{Sec}[e+fx]^2\right)^{m/2}\,(d\,\text{Sin}[e+fx])^m\,\text{Tan}[e+fx]\,\left(a+b\,\text{Tan}[e+fx]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+fx]^2}{a}\right)^{-p}$$

Result (type 6, 2810 leaves):

$$\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\,\frac{2+m}{2},\,-p,\,\frac{3+m}{2},\,-\text{Tan}[e+fx]^2,\,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right]$$

$$\text{Cos}[e+f x]\,\text{Sin}[e+f x]\,(d\,\text{Sin}[e+f x])^m\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}\Bigg)\Big/$$

$$\Bigg(f\,(1+m)\,\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-$$

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)$$

$$\Bigg(\Bigg(2\,a\,b\,(3+m)\,p\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Tan}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m$$

$$\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\Bigg)\Big/\Bigg((1+m)\,\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-$$

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Cos}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((1+m)\,\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-$$

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)\Bigg)-$$

$$\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sin}[e+f x]^2\left(\frac{\text{Tan}[e+f x]}{\sqrt{\text{Sec}[e+f x]^2}}\right)^m\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((1+m)\,\Bigg(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+$$

$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\right.\right.$$

$$\left.\left.\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+\left(a\,(3+m)\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\,\left(\frac{\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^m\right.$$

$$\left(1/(a\,(3+m))\,2\,b\,(1+m)\,p\,\text{AppellF1}\left[1+\frac{1+m}{2},\frac{2+m}{2},1-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.1/(3+m)\,(1+m)\,(2+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+\frac{2+m}{2},-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)$$

$$\left.\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/\left((1+m)\,\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$

$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.\left.\left.a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(a\,m\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\right.$$

$$\left.\left(\frac{\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^{-1+m}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\sqrt{\text{Sec}[e+f\,x]^2}-\frac{\text{Tan}[e+f\,x]^2}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)\right)\Big/$$

$$\left((1+m)\,\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$

$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.\left.\left.a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)\right)-$$

$$\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\,\left(\frac{\text{Tan}[e+f\,x]}{\sqrt{\text{Sec}[e+f\,x]^2}}\right)^m\right.$$

$$\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(2\,\left(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.\right.$$

$$a\,(2+m)\,\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+a\,(3+m)$$

$$\left(\frac{1}{a\,(3+m)}2\,b\,(1+m)\,p\,\text{AppellF1}\left[1+\frac{1+m}{2},\frac{2+m}{2},1-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.\frac{1}{3+m}(1+m)\,(2+m)\,\text{AppellF1}\left[1+\frac{1+m}{2},1+\frac{2+m}{2},-p,1+\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$\text{Tan}[e+f\,x]^2\left(2\,b\,p\left(-\frac{1}{a\,(5+m)}2\,b\,(3+m)\,(1-p)\,\text{AppellF1}\left[1+\frac{3+m}{2},\frac{2+m}{2},2-p,1+\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right.\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{5+m}(2+m)\,(3+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+\frac{2+m}{2},1-p,\right.$$

$$\left.\left.1+\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-a\,(2+m)\left(\frac{1}{a\,(5+m)}\right.$$

$$2\,b\,(3+m)\,p\,\text{AppellF1}\left[1+\frac{3+m}{2},\frac{4+m}{2},1-p,1+\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\frac{1}{5+m}$$

$$\left.\left.\left.\left.(3+m)\,(4+m)\,\text{AppellF1}\left[1+\frac{3+m}{2},1+\frac{4+m}{2},-p,1+\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left((1+m)\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},\frac{2+m}{2},-p,\frac{3+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$

$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3+m}{2},\frac{2+m}{2},1-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\right.$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{3+m}{2},\frac{4+m}{2},-p,\frac{5+m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)^2\right)\right)$$

Problem 157: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 88 leaves, 3 steps):

$$-\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},1,-p,\frac{3}{2},\text{Sec}[e+f\,x]^2,-\frac{b\,\text{Sec}[e+f\,x]^2}{a-b}\right]\text{Sec}[e+f\,x]\,\left(a-b+b\,\text{Sec}[e+f\,x]^2\right)^p\left(1+\frac{b\,\text{Sec}[e+f\,x]^2}{a-b}\right)^{-p}$$

Result (type 6, 4030 leaves):

$$\left(\text{Sec}[e+f\,x]\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}\right.$$

$$\left(-\left(2\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\Big/\left(4\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$

$$\left(2\,b\,p\,\text{AppellF1}\left[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,\text{AppellF1}\left[2,\frac{3}{2},-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^2\right)+\left(b\,(-1+2\,p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big/$$

$$\left((1+2\,p)\left(-2\,a\,p\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]-b\,\text{AppellF1}\left[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.\left.-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+b\,(-1+2\,p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)\right)\Big/$$

$$\left(f\sqrt{1+\text{Tan}[e+f\,x]^2}\left(\frac{1}{\sqrt{1+\text{Tan}[e+f\,x]^2}}\,2\,b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\right.\right.$$

$$\left(-\left(2\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\Big/\left(4\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.\right.$$

$$\left(2\,b\,p\,\text{AppellF1}\left[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,\text{AppellF1}\left[2,\frac{3}{2},-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^2\right)+\left(b\,(-1+2\,p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big/\left((1+2\,p)\right.$$

$$\left(-2\,a\,p\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]-b\,\text{AppellF1}\left[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,\right.\right.$$

$$\left.\left.\left.\left.-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+b\,(-1+2\,p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\frac{1}{\left(1+\text{Tan}[e+f\,x]^2\right)^{3/2}}\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(-\left(2\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\Big/\right.$$

$$\left(4\,a\,\text{AppellF1}\left[1,\frac{1}{2},-p,2,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[2,\frac{3}{2},-p,3,-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(b\,(-1+2\,p)\,\text{AppellF1}\left[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\left(1+\text{Tan}[e+f\,x]^2\right)\right)\Big/\left((1+2\,p)\right.$$

$$\left(-2\,a\,p\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]-b\,\text{AppellF1}\left[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,\right.\right.$$

$$-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2 p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Big)\Big)\Big)+$$

$$\frac{1}{\sqrt{1+\text{Tan}[e+f x]^2}}\,2\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,\Big(-\Big(2\,a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\Big/$$

$$\Big(4\,a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+\Big(2\,b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\text{AppellF1}\Big[2,\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\,\text{Tan}[e+f x]^2\Big)+$$

$$\Big(b\,(-1+2 p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\left(1+\text{Tan}[e+f x]^2\right)\Big)\Big/$$

$$\Big((1+2 p)\,\Big(-2\,a\,p\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]-$$

$$b\,\text{AppellF1}\Big[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+$$

$$b\,(-1+2 p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Big)\Big)\Big)+\frac{1}{\sqrt{1+\text{Tan}[e+f x]^2}}$$

$$\text{Tan}[e+f x]^2\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,\Bigg(-\Bigg(2\,a\,\Bigg(\frac{b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{a}-$$

$$\frac{1}{2}\,\text{AppellF1}\Big[2,\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Bigg/$$

$$\Big(4\,a\,\text{AppellF1}\Big[1,\frac{1}{2},-p,2,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+\Big(2\,b\,p\,\text{AppellF1}\Big[2,\frac{1}{2},1-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-$$

$$a\,\text{AppellF1}\Big[2,\frac{3}{2},-p,3,-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\,\text{Tan}[e+f x]^2\Big)+$$

$$\Big(2\,b\,(-1+2 p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\Big/\Big((1+2 p)$$

$$\Big(-2\,a\,p\,\text{AppellF1}\Big[\frac{1}{2}-p,-\frac{1}{2},1-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]-b\,\text{AppellF1}\Big[\frac{1}{2}-p,\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f x]^2,$$

$$-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]+b\,(-1+2 p)\,\text{AppellF1}\Big[-\frac{1}{2}-p,-\frac{1}{2},-p,\frac{1}{2}-p,-\text{Cot}[e+f x]^2,-\frac{a\,\text{Cot}[e+f x]^2}{b}\Big]\,\text{Tan}[e+f x]^2\Big)\Big)+$$

$$\Big(b(-1+2p)\Big(-1\Big/\Big(b\left(\tfrac{1}{2}-p\right)\Big)2a\left(-\tfrac{1}{2}-p\right)p\,\text{AppellF1}\Big[\tfrac{1}{2}-p,-\tfrac{1}{2},1-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]$$

$$\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-1\Big/\left(\tfrac{1}{2}-p\right)\left(-\tfrac{1}{2}-p\right)\text{AppellF1}\Big[\tfrac{1}{2}-p,\tfrac{1}{2},-p,\tfrac{3}{2}-p,$$

$$-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\Big)\left(1+\text{Tan}[e+fx]^2\right)\Big)\Big/\Big((1+2p)$$

$$\Big(-2ap\,\text{AppellF1}\Big[\tfrac{1}{2}-p,-\tfrac{1}{2},1-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]-b\,\text{AppellF1}\Big[\tfrac{1}{2}-p,\tfrac{1}{2},-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,$$

$$-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]+b(-1+2p)\,\text{AppellF1}\Big[-\tfrac{1}{2}-p,-\tfrac{1}{2},-p,\tfrac{1}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Tan}[e+fx]^2\Big)\Big)-$$

$$\Big(b(-1+2p)\,\text{AppellF1}\Big[-\tfrac{1}{2}-p,-\tfrac{1}{2},-p,\tfrac{1}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\left(1+\text{Tan}[e+fx]^2\right)$$

$$\Big(-2ap\Big(\frac{1}{b\left(\frac{3}{2}-p\right)}2a\left(\tfrac{1}{2}-p\right)(1-p)\,\text{AppellF1}\Big[\tfrac{3}{2}-p,-\tfrac{1}{2},2-p,\tfrac{5}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-$$

$$\frac{1}{\frac{3}{2}-p}\left(\tfrac{1}{2}-p\right)\text{AppellF1}\Big[\tfrac{3}{2}-p,\tfrac{1}{2},1-p,\tfrac{5}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\Big)-$$

$$b\Big(-\frac{1}{b\left(\frac{3}{2}-p\right)}2a\left(\tfrac{1}{2}-p\right)p\,\text{AppellF1}\Big[\tfrac{3}{2}-p,\tfrac{1}{2},1-p,\tfrac{5}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2+$$

$$\frac{1}{\frac{3}{2}-p}\left(\tfrac{1}{2}-p\right)\text{AppellF1}\Big[\tfrac{3}{2}-p,\tfrac{3}{2},-p,\tfrac{5}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\Big)+$$

$$2b(-1+2p)\,\text{AppellF1}\Big[-\tfrac{1}{2}-p,-\tfrac{1}{2},-p,\tfrac{1}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]+b(-1+2p)$$

$$\Big(-\frac{1}{b\left(\frac{1}{2}-p\right)}2a\left(-\tfrac{1}{2}-p\right)p\,\text{AppellF1}\Big[\tfrac{1}{2}-p,-\tfrac{1}{2},1-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2-$$

$$\frac{1}{\frac{1}{2}-p}\left(-\tfrac{1}{2}-p\right)\text{AppellF1}\Big[\tfrac{1}{2}-p,\tfrac{1}{2},-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]\text{Cot}[e+fx]\,\text{Csc}[e+fx]^2\Big)\text{Tan}[e+fx]^2\Big)\Big)\Big/$$

$$\Big((1+2p)\Big(-2ap\,\text{AppellF1}\Big[\tfrac{1}{2}-p,-\tfrac{1}{2},1-p,\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]-b\,\text{AppellF1}\Big[\tfrac{1}{2}-p,\tfrac{1}{2},-p,$$

$$\tfrac{3}{2}-p,-\text{Cot}[e+fx]^2,-\tfrac{a\,\text{Cot}[e+fx]^2}{b}\Big]+b(-1+2p)\,\text{AppellF1}\Big[-\tfrac{1}{2}-p,-\tfrac{1}{2},-p,\tfrac{1}{2}-p,-\text{Cot}[e+fx]^2,$$

$$-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\Big]\,\mathrm{Tan}[e+f\,x]^2\Big)^2\Big)+\Big(2\,a\,\mathrm{AppellF1}\Big[1,\,\frac{1}{2},\,-p,\,2,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]$$

$$\Big(2\,\Big(2\,b\,p\,\mathrm{AppellF1}\Big[2,\,\frac{1}{2},\,1-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]-a\,\mathrm{AppellF1}\Big[2,\,\frac{3}{2},\,-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\Big)$$

$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]+4\,a\,\Big(\frac{b\,p\,\mathrm{AppellF1}\Big[2,\,\frac{1}{2},\,1-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{a}-$$

$$\frac{1}{2}\,\mathrm{AppellF1}\Big[2,\,\frac{3}{2},\,-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\Big)+$$

$$\mathrm{Tan}[e+f\,x]^2\,\Big(2\,b\,p\,\Big(-\frac{1}{3\,a}4\,b\,(1-p)\,\mathrm{AppellF1}\Big[3,\,\frac{1}{2},\,2-p,\,4,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-$$

$$\frac{2}{3}\,\mathrm{AppellF1}\Big[3,\,\frac{3}{2},\,1-p,\,4,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\Big)-$$

$$a\,\Big(\frac{1}{3\,a}4\,b\,p\,\mathrm{AppellF1}\Big[3,\,\frac{3}{2},\,1-p,\,4,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-$$

$$2\,\mathrm{AppellF1}\Big[3,\,\frac{5}{2},\,-p,\,4,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\Big)\Big)\Big)\Big)\Big/$$

$$\Big(4\,a\,\mathrm{AppellF1}\Big[1,\,\frac{1}{2},\,-p,\,2,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]+\Big(2\,b\,p\,\mathrm{AppellF1}\Big[2,\,\frac{1}{2},\,1-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,$$

$$-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]-a\,\mathrm{AppellF1}\Big[2,\,\frac{3}{2},\,-p,\,3,\,-\mathrm{Tan}[e+f\,x]^2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\Big)\,\mathrm{Tan}[e+f\,x]^2\Big)^2\Big)\Big)\Big)$$

- **Problem 158: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Csc}[e+f\,x]^3\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 92 leaves, 3 steps):

$$\frac{1}{3\,f}\mathrm{AppellF1}\Big[\frac{3}{2},\,2,\,-p,\,\frac{5}{2},\,\mathrm{Sec}[e+f\,x]^2,\,-\frac{b\,\mathrm{Sec}[e+f\,x]^2}{a-b}\Big]\,\mathrm{Sec}[e+f\,x]^3\,\left(a-b+b\,\mathrm{Sec}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\mathrm{Sec}[e+f\,x]^2}{a-b}\right)^{-p}$$

Result (type 6, 1962 leaves):

$$-\Big(\Big(b\,(-3+2\,p)\,\mathrm{AppellF1}\Big[\frac{1}{2}-p,\,-\frac{1}{2},\,-p,\,\frac{3}{2}-p,\,-\mathrm{Cot}[e+f\,x]^2,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\Big]\,\mathrm{Csc}[e+f\,x]^3\,\sqrt{\mathrm{Sec}[e+f\,x]^2}\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{2\,p}\Big)\Big/$$

$$\left(f\,(-1+2p)\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)$$

$$\left(-\left(2\,b^2\,p\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\left(\text{Sec}[e+f\,x]^2\right)^{3/2}\right.\right.$$

$$\left.\text{Tan}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\right)\Big/\left((-1+2p)\right.$$

$$\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(b\,(-3+2p)\left(-1\Big/\left(b\left(\frac{3}{2}-p\right)\right)2\,a\left(\frac{1}{2}-p\right)p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Cot}[e+f\,x]\right.\right.$$

$$\left.\text{Csc}[e+f\,x]^2-1\Big/\left(\frac{3}{2}-p\right)\left(\frac{1}{2}-p\right)\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2\right)$$

$$\left.\sqrt{\text{Sec}[e+f\,x]^2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/\left((-1+2p)\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+\right.\right.$$

$$b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+(3-2p)\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)-$$

$$\left(b\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\sqrt{\text{Sec}[e+f\,x]^2}\,\text{Tan}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$

$$\left((-1+2p)\left(2\,a\,p\,\text{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+b\left(\text{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\text{Cot}[e+\right.\right.\right.$$

$$\left.\left.\left.\left.f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+(3-2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Tan}[e+f\,x]^2\right)\right)\right)+$$

$$\left(b\,(-3+2p)\,\text{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\sqrt{\text{Sec}[e+f\,x]^2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right.$$

$$\left(2\,a\,p\left(\frac{1}{b\left(\frac{5}{2}-p\right)}2\,a\,(1-p)\left(\frac{3}{2}-p\right)\text{AppellF1}\left[\frac{5}{2}-p,-\frac{1}{2},2-p,\frac{7}{2}-p,-\text{Cot}[e+f\,x]^2,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Cot}[e+f\,x]\right.\right.$$

$$\mathrm{Csc}[e+fx]^2-\frac{1}{\frac{5}{2}-p}\left(\frac{3}{2}-p\right)\mathrm{AppellF1}\left[\frac{5}{2}-p,\frac{1}{2},1-p,\frac{7}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2\Bigg)+$$

$$b\left(-\frac{1}{b\left(\frac{5}{2}-p\right)}2a\left(\frac{3}{2}-p\right)p\,\mathrm{AppellF1}\left[\frac{5}{2}-p,\frac{1}{2},1-p,\frac{7}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2+\right.$$

$$\frac{1}{\frac{5}{2}-p}\left(\frac{3}{2}-p\right)\mathrm{AppellF1}\left[\frac{5}{2}-p,\frac{3}{2},-p,\frac{7}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2+2(3-2p)$$

$$\mathrm{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]+(3-2p)\left(-\frac{1}{b\left(\frac{3}{2}-p\right)}\right.$$

$$2a\left(\frac{1}{2}-p\right)p\,\mathrm{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2-\frac{1}{\frac{3}{2}-p}\left(\frac{1}{2}-p\right)$$

$$\left.\left.\left.\mathrm{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^2\right)\mathrm{Tan}[e+fx]^2\right)\right)\right)\Big/\Bigg((-1+2p)$$

$$\left(2ap\,\mathrm{AppellF1}\left[\frac{3}{2}-p,-\frac{1}{2},1-p,\frac{5}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]+b\left(\mathrm{AppellF1}\left[\frac{3}{2}-p,\frac{1}{2},-p,\frac{5}{2}-p,-\mathrm{Cot}[e+fx]^2,\right.\right.\right.$$

$$\left.\left.\left.\left.\left.-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]+(3-2p)\,\mathrm{AppellF1}\left[\frac{1}{2}-p,-\frac{1}{2},-p,\frac{3}{2}-p,-\mathrm{Cot}[e+fx]^2,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Tan}[e+fx]^2\right)\right)^2\right)\right)\right)$$

■ Problem 159: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \mathrm{Sin}[e+fx]^2\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{3f}\mathrm{AppellF1}\left[\frac{3}{2},2,-p,\frac{5}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]\mathrm{Tan}[e+fx]^3\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\left(1+\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right)^{-p}$$

Result (type 6, 3698 leaves):

$$\left(3a\,\mathrm{Cos}[e+fx]^3\,\mathrm{Sin}[e+fx]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\right.$$

$$\left(\mathrm{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]\Big/\left(-3a\,\mathrm{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]-\right.\right.$$

$$2\left(b\,p\,\mathrm{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]-2a\,\mathrm{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]\right)$$

$$\text{Tan}[e+f x]^2\Big)+\left(\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\Big)$$

$$\left(-\frac{1}{4}\text{Cos}[2(e+f x)]^3\left(a+b\,\text{Tan}[e+f x]^2\right)^p+\frac{1}{4}\,i\,\text{Sin}[2(e+f x)]\left(a+b\,\text{Tan}[e+f x]^2\right)^p+\frac{1}{2}\text{Sin}[2(e+f x)]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^p-\right.$$

$$\frac{1}{4}\,i\,\text{Sin}[2(e+f x)]^3\left(a+b\,\text{Tan}[e+f x]^2\right)^p+\text{Cos}[2(e+f x)]^2\left(\frac{1}{2}\left(a+b\,\text{Tan}[e+f x]^2\right)^p-\frac{1}{4}\,i\,\text{Sin}[2(e+f x)]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)+$$

$$\left.\text{Cos}[2(e+f x)]\left(-\frac{1}{4}\left(a+b\,\text{Tan}[e+f x]^2\right)^p-\frac{1}{4}\text{Sin}[2(e+f x)]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\right)\Big)\Big/$$

$$\left(f\left(6\,a\,b\,p\,\text{Sin}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\left(\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Big/\right.\right.\right.$$

$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-\right.$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-2\,a\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)$$

$$\left.\text{Tan}[e+f x]^2\right)+\left(\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-\right.\right.$$

$$\left.\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\right)\right)+3\,a\,\text{Cos}[e+f x]^4\left(a+b\,\text{Tan}[e+f x]^2\right)^p$$

$$\left(\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Big/\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-\right.\right.$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]-2\,a\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)$$

$$\left.\text{Tan}[e+f x]^2\right)+\left(\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]-\right.\right.$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Big)-9\,a\,\text{Cos}[e+f\,x]^2\,\text{Sin}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p$$

$$\Big(\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big/\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-2\,a\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big)$$

$$\text{Tan}[e+f\,x]^2\Big)+\Big(\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\Big)\Big/$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Big)+$$

$$3\,a\,\text{Cos}[e+f\,x]^3\,\text{Sin}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(\Bigg(\frac{2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-$$

$$\frac{4}{3}\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$2\,a\,\text{AppellF1}\Big[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

$$\Big(2\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Big)\Big/$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]-$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

$$\Bigg(\text{Sec}[e+f\,x]^2\,\Bigg(\frac{2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-$$

$$\frac{2}{3}\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\left(\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(-4\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.\right.\right.$$

$$\left.2\,a\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-$$

$$3\,a\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.$$

$$\left.\frac{4}{3}\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$

$$2\,\text{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},2,2-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.\right.$$

$$\left.\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},3,1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$

$$2\,a\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},3,1-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.\left.\left.\left.\frac{18}{5}\,\text{AppellF1}\left[\frac{5}{2},4,-p,\frac{7}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},2,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},2,1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-2\,a\,\text{AppellF1}\left[\frac{3}{2},3,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)^2-$$

$$\left(\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\left(4\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.\right.$$

$$\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$3 a \Bigg(\frac{2 b p \,\text{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x]}{3 a} -$$

$$\frac{2}{3} \text{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] \Bigg) +$$

$$2 \,\text{Tan}[e+f x]^2 \Bigg(b p \Bigg(-\frac{6}{5} \text{AppellF1}\left[\frac{5}{2}, 1-p, 2, \frac{7}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] -$$

$$\frac{1}{5 a} 6 b (1-p) \,\text{AppellF1}\left[\frac{5}{2}, 2-p, 1, \frac{7}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] \Bigg) -$$

$$a \Bigg(\frac{1}{5 a} 6 b p \,\text{AppellF1}\left[\frac{5}{2}, 1-p, 2, \frac{7}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] -$$

$$\frac{12}{5} \text{AppellF1}\left[\frac{5}{2}, -p, 3, \frac{7}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sec}[e+f x]^2 \,\text{Tan}[e+f x] \Bigg)\Bigg)\Bigg)\Bigg)\Bigg) \Big/$$

$$\Bigg(3 a \,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] + 2 \Bigg(b p \,\text{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a},\right.$$

$$\left. -\text{Tan}[e+f x]^2\right] - a \,\text{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \Bigg) \text{Tan}[e+f x]^2 \Bigg)^2 \Bigg)\Bigg)\Bigg)$$

- **Problem 160: Result more than twice size of optimal antiderivative.**

$$\int \left(a + b \,\text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 78 leaves, 3 steps):

$$\frac{\text{AppellF1}\left[\frac{1}{2}, 1, -p, \frac{3}{2}, -\text{Tan}[e+f x]^2, -\frac{b \,\text{Tan}[e+f x]^2}{a}\right] \text{Tan}[e+f x] \left(a + b \,\text{Tan}[e+f x]^2\right)^p \left(1 + \frac{b \,\text{Tan}[e+f x]^2}{a}\right)^{-p}}{f}$$

Result (type 6, 192 leaves):

$$\left(3 a \,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] \text{Sin}[2 (e+f x)] \left(a + b \,\text{Tan}[e+f x]^2\right)^p\right) \Big/$$

$$\Bigg(6 a f \,\text{AppellF1}\left[\frac{1}{2}, -p, 1, \frac{3}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] + 4 f$$

$$\left(b p \,\text{AppellF1}\left[\frac{3}{2}, 1-p, 1, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right] - a \,\text{AppellF1}\left[\frac{3}{2}, -p, 2, \frac{5}{2}, -\frac{b \,\text{Tan}[e+f x]^2}{a}, -\text{Tan}[e+f x]^2\right]\right) \text{Tan}[e+f x]^2 \Bigg)$$

- **Problem 164: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (d\,\mathrm{Sin}[e+f\,x])^m\,(b\,(c\,\mathrm{Tan}[e+f\,x])^n)^p\,dx$$

Optimal (type 5, 98 leaves, 3 steps):

$$\frac{1}{f\,(1+m+n\,p)}\left(\mathrm{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}(1+n\,p),\,\frac{1}{2}(1+m+n\,p),\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Sin}[e+f\,x]^2\right]\,(d\,\mathrm{Sin}[e+f\,x])^m\,\mathrm{Tan}[e+f\,x]\,(b\,(c\,\mathrm{Tan}[e+f\,x])^n)^p$$

Result (type 6, 2372 leaves):

$$\left((3+m+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.$$
$$\left.\mathrm{Sin}[e+f\,x]^{1+m}\,(d\,\mathrm{Sin}[e+f\,x])^m\,\mathrm{Tan}[e+f\,x]^{n\,p}\,(b\,(c\,\mathrm{Tan}[e+f\,x])^n)^p\right)\Big/$$
$$\left(f\,(1+m+n\,p)\,\left((3+m+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.\right.$$
$$2\left((1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n\,p),\,n\,p,\,2+m,\,\frac{1}{2}(5+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$
$$\left.\left.n\,p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n\,p),\,1+n\,p,\,1+m,\,\frac{1}{2}(5+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)$$
$$\left(\left((1+m)\,(3+m+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]^m\right.\right.$$
$$\left.\mathrm{Tan}[e+f\,x]^{n\,p}\right)\Big/\left((1+m+n\,p)\,\left((3+m+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.\right.$$
$$2\left((1+m)\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n\,p),\,n\,p,\,2+m,\,\frac{1}{2}(5+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$
$$\left.\left.\left.n\,p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+m+n\,p),\,1+n\,p,\,1+m,\,\frac{1}{2}(5+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)+$$
$$\left((3+m+n\,p)\,\mathrm{Sin}[e+f\,x]^{1+m}\,\left(-\frac{1}{3+m+n\,p}(1+m)\,(1+m+n\,p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+m+n\,p),\,n\,p,\,2+m,\,1+\frac{1}{2}(3+m+n\,p),\right.\right.\right.$$
$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+m+n\,p}n\,p\,(1+m+n\,p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+m+n\,p),\right.$$
$$\left.\left.\left.1+n\,p,\,1+m,\,1+\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\mathrm{Tan}[e+f\,x]^{n\,p}\right)\Big/$$
$$\left((1+m+n\,p)\,\left((3+m+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.\right.$$

$$2\,\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+n\,p),\,n\,p,\,2+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+m+n\,p),\,1+n\,p,\,1+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Big)-$$

$$\Big((3+m+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sin}[e+f\,x]^{1+m}$$

$$\Big(-2\,\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+n\,p),\,n\,p,\,2+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-n\,p\,\text{AppellF1}\Big[\frac{1}{2}$$

$$(3+m+n\,p),\,1+n\,p,\,1+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+$$

$$(3+m+n\,p)\,\Big(-\frac{1}{3+m+n\,p}(1+m)\,(1+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+n\,p),\,n\,p,\,2+m,\,1+\frac{1}{2}(3+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{3+m+n\,p}n\,p\,(1+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+m+n\,p),\,1+n\,p,\,1+$$

$$m,\,1+\frac{1}{2}(3+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)-2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2$$

$$\Big((1+m)\,\Big(-\frac{1}{5+m+n\,p}(2+m)\,(3+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+n\,p),\,n\,p,\,3+m,\,1+\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+m+n\,p}n\,p\,(3+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+n\,p),\,1+n\,p,$$

$$2+m,\,1+\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)-n\,p\,\Big(-\frac{1}{5+m+n\,p}$$

$$(1+m)\,(3+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+n\,p),\,1+n\,p,\,2+m,\,1+\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+m+n\,p}(1+n\,p)\,(3+m+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+m+n\,p),\,2+n\,p,\,1+m,$$

$$1+\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)\Big)\Big)\Big)\,\text{Tan}[e+f\,x]^{n\,p}\Big)\Big/$$

$$\Big((1+m+n\,p)\,\Big((3+m+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-$$

$$2\,\Big((1+m)\,\text{AppellF1}\Big[\frac{1}{2}(3+m+n\,p),\,n\,p,\,2+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-n\,p$$

$$\text{AppellF1}\Big[\frac{1}{2}(3+m+n\,p),\,1+n\,p,\,1+m,\,\frac{1}{2}(5+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2\Big)+$$

$$\Big(n\,p\,(3+m+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+m+n\,p),\,n\,p,\,1+m,\,\frac{1}{2}(3+m+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\left.\left.\operatorname{Sec}[e+fx]^2\operatorname{Sin}[e+fx]^{1+m}\operatorname{Tan}[e+fx]^{-1+np}\right)\right/$$

$$\left((1+m+np)\left((3+m+np)\operatorname{AppellF1}\left[\frac{1}{2}(1+m+np),np,1+m,\frac{1}{2}(3+m+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.\right.$$
$$2\left((1+m)\operatorname{AppellF1}\left[\frac{1}{2}(3+m+np),np,2+m,\frac{1}{2}(5+m+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.$$
$$\left.\left.\left.\left.np\operatorname{AppellF1}\left[\frac{1}{2}(3+m+np),1+np,1+m,\frac{1}{2}(5+m+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\right)$$

- **Problem 165: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\operatorname{Sin}[e+fx]^2\left(b\left(c\operatorname{Tan}[e+fx]\right)^n\right)^p\,dx$$

Optimal (type 5, 63 leaves, 3 steps):

$$\frac{\operatorname{Hypergeometric2F1}\left[2,\frac{1}{2}(3+np),\frac{1}{2}(5+np),-\operatorname{Tan}[e+fx]^2\right]\operatorname{Tan}[e+fx]^3\left(b\left(c\operatorname{Tan}[e+fx]\right)^n\right)^p}{f(3+np)}$$

Result (type 6, 5192 leaves):

$$\left(8(3+np)\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]^5\operatorname{Sin}\left[\frac{1}{2}(e+fx)\right]\right.$$
$$\left(\left(\operatorname{AppellF1}\left[\frac{1}{2}(1+np),np,2,\frac{1}{2}(3+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2\right)\right/$$
$$\left((3+np)\operatorname{AppellF1}\left[\frac{1}{2}(1+np),np,2,\frac{1}{2}(3+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$2\left(-2\operatorname{AppellF1}\left[\frac{1}{2}(3+np),np,3,\frac{1}{2}(5+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.np\operatorname{AppellF1}\left[\frac{1}{2}(3+np),1+np,2,\frac{1}{2}(5+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)-$$
$$\operatorname{AppellF1}\left[\frac{1}{2}(1+np),np,3,\frac{1}{2}(3+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big/$$
$$\left((3+np)\operatorname{AppellF1}\left[\frac{1}{2}(1+np),np,3,\frac{1}{2}(3+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$2\left(-3\operatorname{AppellF1}\left[\frac{1}{2}(3+np),np,4,\frac{1}{2}(5+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.np\operatorname{AppellF1}\left[\frac{1}{2}(3+np),1+np,3,\frac{1}{2}(5+np),\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)$$
$$\left(b\left(c\operatorname{Tan}[e+fx]\right)^n\right)^p\left(-\frac{1}{4}\operatorname{Cos}[2(e+fx)]^3\operatorname{Tan}[e+fx]^{np}+\frac{1}{4}i\operatorname{Sin}[2(e+fx)]\operatorname{Tan}[e+fx]^{np}+\frac{1}{2}\operatorname{Sin}[2(e+fx)]^2\operatorname{Tan}[e+fx]^{np}-\right.$$

$$\frac{1}{4}\,\mathrm{i}\,\mathrm{Sin}[2\,(e+f\,x)]^3\,\mathrm{Tan}[e+f\,x]^{n\,p}+\mathrm{Cos}[2\,(e+f\,x)]^2\,\left(\frac{1}{2}\,\mathrm{Tan}[e+f\,x]^{n\,p}-\frac{1}{4}\,\mathrm{i}\,\mathrm{Sin}[2\,(e+f\,x)]\,\mathrm{Tan}[e+f\,x]^{n\,p}\right)+$$

$$\mathrm{Cos}[2\,(e+f\,x)]\,\left(-\frac{1}{4}\,\mathrm{Tan}[e+f\,x]^{n\,p}-\frac{1}{4}\,\mathrm{Sin}[2\,(e+f\,x)]^2\,\mathrm{Tan}[e+f\,x]^{n\,p}\right)\Bigg)\Bigg)\Bigg)\Bigg/\,\Bigg(f\,(1+n\,p)$$

$$\Bigg(\frac{1}{1+n\,p}\,4\,(3+n\,p)\,\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^6\,\Bigg(\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\,\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg/$$

$$\Bigg((3+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-2\,\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p\,\mathrm{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,$$

$$\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-\mathrm{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),$$

$$\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big]\Bigg/\,\Bigg((3+n\,p)\,\mathrm{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,$$

$$-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Big]+2\,\Bigg(-3\,\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\mathrm{Tan}[e+f\,x]^{n\,p}-$$

$$\frac{1}{1+n\,p}\,20\,(3+n\,p)\,\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^4\,\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\Bigg(\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg/\,\Bigg((3+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-2\,\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg/$$

$$\Bigg((3+n\,p)\,\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-3\,\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\mathrm{Tan}[e+f\,x]^{n\,p}+$$

$$\frac{1}{1+n\,p}\,8\,(3+n\,p)\,\mathrm{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^5\,\mathrm{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\,\Bigg(\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Big) \Big/ \Big((3+n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$2\Big(-2\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) +$$

$$\Big(\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \Big(-\frac{1}{3+n p}2\,(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 3, 1+\frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3+n p} n p\,(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2,\right.$$

$$\left.1+\frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Big)\Big) \Big/$$

$$\Big((3+n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$2\Big(-2\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) -$$

$$\Big(-\frac{1}{3+n p}3\,(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 4, 1+\frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3+n p} n p\,(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 3, 1+\frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Big) \Big/ \Big((3+n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\Big(-3\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n$$

$$p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 3, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big) -$$

$$\Big(\mathrm{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\Big(2\Big(-2\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +$$

$$n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Big)\,\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right] +$$

$$(3+n p)\,\Big(-\frac{1}{3+n p}2\,(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 3, 1+\frac{1}{2}(3+n p), \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p} n p (1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2,\right.$$

$$\left.\left.1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left(-2\left(-\frac{1}{5+n p} 3 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), n p, 4, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p} n p (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$\left.\left.1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$n p \left(-\frac{1}{5+n p} 2 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)(3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 2+n p, 2,\right.$$

$$\left.\left.\left.\left.\left.1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$2\left(-2 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2+$$

$$\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(2\left(-3 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4,\right.\right.\right.\right.$$

$$\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)\left(-\frac{1}{3+n p} 3 (1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 4,\right.\right.$$

$$\left.1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p} n p (1+n p) \text{AppellF1}\left[\right.$$

$$\left.\left.1+\frac{1}{2}(1+n p), 1+n p, 3, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-3\left(-\frac{1}{5+n p} 4 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), n p, 5, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p} n p (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$1+n\,p,\,4,\,1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big)\,+$$

$$n\,p\,\Big(-\frac{1}{5+n\,p}3\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,4,\,1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]+\frac{1}{5+n\,p}(1+n\,p)\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n\,p),\,2+n\,p,\,3,$$

$$1+\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]\Big]\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2\Big)$$

$$\text{Tan}[e+f\,x]^{n\,p}+\frac{1}{1+n\,p}\,8\,n\,p\,(3+n\,p)\,\text{Cos}\Big[\frac{1}{2}\,(e+f\,x)\Big]^5\,\text{Sec}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}\,(e+f\,x)\Big]$$

$$\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+n\,p$$

$$\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)-$$

$$\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]+n\,p$$

$$\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\Big)\,\text{Tan}[e+f\,x]^{-1+n\,p}\Big)\Big)$$

- **Problem 170: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f\,x]^3\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p\,dx$$

Optimal (type 5, 93 leaves, 3 steps):

$$\frac{1}{f\,(4+n\,p)}\left(\text{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\,\text{Hypergeometric2F1}\left[\frac{1}{2}(1+n\,p),\,\frac{1}{2}(4+n\,p),\,\frac{1}{2}(6+n\,p),\,\text{Sin}[e+f\,x]^2\right]\,\text{Sin}[e+f\,x]^3\,\text{Tan}[e+f\,x]\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p$$

Result (type 6, 5464 leaves):

$$\Big(16\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^6\,\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]^2$$
$$\Bigg(\Bigg(\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Big/\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$\left.n\,p\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,3,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)-$$
$$\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Big/\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\right.$$
$$\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\left(-4\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,5,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$\left.n\,p\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)$$
$$\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p\Bigg(-\frac{1}{8}\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,i\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+$$
$$\frac{3}{8}\text{Sin}[2\,(e+f\,x)]^2\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-$$
$$\frac{1}{8}\,i\,\text{Sin}[2\,(e+f\,x)]^3\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\text{Cos}[3\,(e+f\,x)]$$
$$\left(-\frac{1}{8}\,i\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,i\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Tan}[e+f\,x]^{n\,p}+\frac{1}{8}\text{Sin}[2\,(e+f\,x)]^3\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2\,(e+f\,x)]^3\left(\frac{1}{8}\,i\,\text{Cos}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{1}{8}\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2\,(e+f\,x)]^2\Bigg(-\frac{3}{8}\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,i\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+$$
$$\text{Cos}[3\,(e+f\,x)]\left(-\frac{3}{8}\,i\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}\right)\Bigg)+\text{Cos}[2\,(e+f\,x)]$$
$$\Bigg(\frac{3}{8}\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{4}\,i\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\text{Sin}[2\,(e+f\,x)]^2\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+$$

$$\text{Cos}[3\,(e+f\,x)]\,\left(\frac{3}{8}\,\mathrm{i}\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{4}\,\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Tan}[e+f\,x]^{n\,p}\right)\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(f\,(2+n\,p)\,\Bigg(\frac{1}{2+n\,p}16\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^7\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]\,\Bigg(\Bigg(\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Big/\,\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-3\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p$$

$$\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,3,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\,\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-4\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,5,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n$$

$$p\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\text{Tan}[e+f\,x]^{n\,p}-$$

$$\frac{1}{2+n\,p}48\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^5\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^3\,\Bigg(\Bigg(\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Big/\,\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-3\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p$$

$$\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,3,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)-$$

$$\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Big/\,\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,4,\,2+\frac{n\,p}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+2\,\Bigg(-4\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,5,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n$$

$$p\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,4,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\Bigg)\Bigg)\,\text{Tan}[e+f\,x]^{n\,p}+$$

$$\frac{1}{2+n\,p}16\,(4+n\,p)\,\text{Cos}\left[\frac{1}{2}\,(e+f\,x)\right]^6\,\text{Sin}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\Bigg(\Bigg(\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]\Bigg)\Big/\,\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,3,\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+$$

$$2\left(-3\,\text{AppellF1}\left[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\right.$$
$$\left.\text{AppellF1}\left[2+\frac{n p}{2},1+n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)+$$
$$\left(\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\left(-1\Big/\left(2+\frac{n p}{2}\right)3\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+1\Big/\left(2+\frac{n p}{2}\right)n p\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},1+n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/\left((4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,3,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2\left(-3\,\text{AppellF1}\left[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n\right.$$
$$\left.\left.p\,\text{AppellF1}\left[2+\frac{n p}{2},1+n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$
$$\left(-1\Big/\left(2+\frac{n p}{2}\right)4\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},n p,5,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+1\Big/\left(2+\frac{n p}{2}\right)n p\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},1+n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$
$$\left.\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\Big/\left((4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,4,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[2+\frac{n p}{2},n p,5,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\right.$$
$$\left.\left.\text{AppellF1}\left[2+\frac{n p}{2},1+n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$
$$\left(\text{AppellF1}\left[1+\frac{n p}{2},n p,3,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$
$$\left(2\left(-3\,\text{AppellF1}\left[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[2+\frac{n p}{2},1+n p,3,3+\frac{n p}{2},\right.\right.\right.$$
$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(4+n p)\left(-\frac{1}{2+\frac{n p}{2}}3\left(1+\frac{n p}{2}\right)\right.$$
$$\text{AppellF1}\left[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{2+\frac{n p}{2}}n p$$

$$\left(1+\frac{n\,p}{2}\right)\text{AppellF1}\left[2+\frac{n\,p}{2},1+n\,p,3,3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg(-3\Bigg(-\frac{1}{3+\frac{n\,p}{2}}4\left(2+\frac{n\,p}{2}\right)\text{AppellF1}\left[3+\frac{n\,p}{2},n\,p,5,4+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+\frac{n\,p}{2}}n\,p\left(2+\frac{n\,p}{2}\right)\text{AppellF1}\left[3+\frac{n\,p}{2},1+n\,p,4,4+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\Bigg)+n\,p\Bigg(-\frac{1}{3+\frac{n\,p}{2}}3\left(2+\frac{n\,p}{2}\right)\text{AppellF1}\left[3+\frac{n\,p}{2},1+n\,p,4,\right.$$

$$4+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+\frac{n\,p}{2}}\left(2+\frac{n\,p}{2}\right)(1+n\,p)$$

$$\text{AppellF1}\left[3+\frac{n\,p}{2},2+n\,p,3,4+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((4+n\,p)\,\text{AppellF1}\left[1+\frac{n\,p}{2},n\,p,3,2+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+2\Bigg(-3\,\text{AppellF1}\left[2+\frac{n\,p}{2},n\,p,4,3+\frac{n\,p}{2},\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[2+\frac{n\,p}{2},1+n\,p,3,3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)$$

$$\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)^2+\Bigg(\text{AppellF1}\left[1+\frac{n\,p}{2},n\,p,4,2+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$

$$\Bigg(2\Bigg(-4\,\text{AppellF1}\left[2+\frac{n\,p}{2},n\,p,5,3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\,\text{AppellF1}\left[2+\frac{n\,p}{2},1+n\,p,4,\right.$$

$$\left.3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+(4+n\,p)\Bigg(-\frac{1}{2+\frac{n\,p}{2}}4\left(1+\frac{n\,p}{2}\right)$$

$$\text{AppellF1}\left[2+\frac{n\,p}{2},n\,p,5,3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{2+\frac{n\,p}{2}}n\,p$$

$$\left(1+\frac{n\,p}{2}\right)\text{AppellF1}\left[2+\frac{n\,p}{2},1+n\,p,4,3+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\Bigg)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg(-4\Bigg(-\frac{1}{3+\frac{n\,p}{2}}5\left(2+\frac{n\,p}{2}\right)\text{AppellF1}\left[3+\frac{n\,p}{2},n\,p,6,4+\frac{n\,p}{2},\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3+\frac{n p}{2}}n p\Big(2+\frac{n p}{2}\Big)\,\text{AppellF1}\Big[3+\frac{n p}{2},1+n p,5,4+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)+n p\Big(-\frac{1}{3+\frac{n p}{2}}4\Big(2+\frac{n p}{2}\Big)\,\text{AppellF1}\Big[3+\frac{n p}{2},1+n p,5,$$

$$4+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3+\frac{n p}{2}}\Big(2+\frac{n p}{2}\Big)(1+n p)$$

$$\text{AppellF1}\Big[3+\frac{n p}{2},2+n p,4,4+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((4+n p)\,\text{AppellF1}\Big[1+\frac{n p}{2},n p,4,2+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+2\Big(-4\,\text{AppellF1}\Big[2+\frac{n p}{2},$$

$$n p,5,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$n p\,\text{AppellF1}\Big[2+\frac{n p}{2},1+n p,4,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)^2\Big)$$

$$\text{Tan}[e+f x]^{n p}+\frac{1}{2+n p}16\,n p\,(4+n p)\,\text{Cos}\Big[\frac{1}{2}(e+f x)\Big]^6\,\text{Sec}[e+f x]^2\,\text{Sin}\Big[\frac{1}{2}(e+f x)\Big]^2$$

$$\Big(\Big(\text{AppellF1}\Big[1+\frac{n p}{2},n p,3,2+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big/$$

$$\Big((4+n p)\,\text{AppellF1}\Big[1+\frac{n p}{2},n p,3,2+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+$$

$$2\Big(-3\,\text{AppellF1}\Big[2+\frac{n p}{2},n p,4,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+n p$$

$$\text{AppellF1}\Big[2+\frac{n p}{2},1+n p,3,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)-$$

$$\text{AppellF1}\Big[1+\frac{n p}{2},n p,4,2+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big/\Big((4+n p)\,\text{AppellF1}\Big[1+\frac{n p}{2},n p,4,2+\frac{n p}{2},$$

$$\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+2\Big(-4\,\text{AppellF1}\Big[2+\frac{n p}{2},n p,5,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+n$$

$$p\,\text{AppellF1}\Big[2+\frac{n p}{2},1+n p,4,3+\frac{n p}{2},\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,-\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)\,\text{Tan}[e+f x]^{-1+n p}\Big)\Big)$$

- **Problem 171: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Sin}[e+f x]\,(b\,(c\,\text{Tan}[e+f x])^n)^p\,dx$$

Optimal (type 5, 91 leaves, 3 steps):

$$\frac{1}{f\,(2+n\,p)}\left(\mathrm{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\,\mathrm{Hypergeometric2F1}\left[\frac{1}{2}(1+n\,p),\,\frac{1}{2}(2+n\,p),\,\frac{1}{2}(4+n\,p),\,\mathrm{Sin}[e+f\,x]^2\right]\mathrm{Sin}[e+f\,x]\,\mathrm{Tan}[e+f\,x]\,\left(b\,(c\,\mathrm{Tan}[e+f\,x])^n\right)^p$$

Result (type 6, 2111 leaves):

$$\left((4+n\,p)\,\mathrm{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,2,\,2+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Sin}[e+f\,x]^3\,\mathrm{Tan}[e+f\,x]^{n\,p}\,\left(b\,(c\,\mathrm{Tan}[e+f\,x])^n\right)^p\right)\Big/$$
$$\Bigg(f\,(2+n\,p)\,\Bigg((4+n\,p)\,\mathrm{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,2,\,2+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$2\,\Bigg(-2\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,3,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$n\,p\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,2,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)$$
$$\Bigg(\Bigg(2\,(4+n\,p)\,\mathrm{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,2,\,2+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\,\mathrm{Tan}[e+f\,x]^{n\,p}\Bigg)\Big/$$
$$\Bigg((2+n\,p)\,\Bigg((4+n\,p)\,\mathrm{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,2,\,2+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$2\,\Bigg(-2\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,3,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$n\,p\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,2,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)+$$
$$\Bigg((4+n\,p)\,\mathrm{Sin}[e+f\,x]^2\,\Bigg(-1\Big/\left(\left(2+\frac{n\,p}{2}\right)2\left(1+\frac{n\,p}{2}\right)\right)\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,3,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$
$$\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]+1\Big/\left(\left(2+\frac{n\,p}{2}\right)n\,p\left(1+\frac{n\,p}{2}\right)\right)$$
$$\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,2,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]\Bigg)\mathrm{Tan}[e+f\,x]^{n\,p}\Bigg)\Big/$$
$$\Bigg((2+n\,p)\,\Bigg((4+n\,p)\,\mathrm{AppellF1}\left[1+\frac{n\,p}{2},\,n\,p,\,2,\,2+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$2\,\Bigg(-2\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,3,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$n\,p\,\mathrm{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,2,\,3+\frac{n\,p}{2},\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)-$$

$$\left((4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,2,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sin}[e+f x]^2\right.$$

$$\left(2\left(-2\,\text{AppellF1}\left[2+\frac{n p}{2},n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\,\text{AppellF1}\left[2+\frac{n p}{2},1+n p,2,3+\right.\right.\right.$$

$$\left.\left.\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(4+n p)\left(-\frac{1}{2+\frac{n p}{2}}\right.$$

$$2\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{2+\frac{n p}{2}}$$

$$\left.n p\left(1+\frac{n p}{2}\right)\text{AppellF1}\left[2+\frac{n p}{2},1+n p,2,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-2\left(-\frac{1}{3+\frac{n p}{2}}3\left(2+\frac{n p}{2}\right)\text{AppellF1}\left[3+\frac{n p}{2},n p,4,4+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+\frac{n p}{2}}n p\left(2+\frac{n p}{2}\right)\text{AppellF1}\left[3+\frac{n p}{2},1+n p,3,4+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)+n p\left(-\frac{1}{3+\frac{n p}{2}}2\left(2+\frac{n p}{2}\right)\text{AppellF1}\left[3+\frac{n p}{2},1+n p,3,4+\frac{n p}{2},\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+\frac{n p}{2}}\left(2+\frac{n p}{2}\right)(1+n p)\,\text{AppellF1}\left[3+\frac{n p}{2},\right.$$

$$\left.\left.\left.\left.\left.2+n p,2,4+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\text{Tan}[e+f x]^{n p}\right)\Big/$$

$$\left((2+n p)\left((4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,2,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\left(-2\,\text{AppellF1}\left[2+\frac{n p}{2},n p,3,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\right.$$

$$\left.\left.\left.\text{AppellF1}\left[2+\frac{n p}{2},1+n p,2,3+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)+$$

$$\left(n p\,(4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,2,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Tan}[e+f x]^{1+n p}\right)\Big/$$

$$\left((2+n p)\left((4+n p)\,\text{AppellF1}\left[1+\frac{n p}{2},n p,2,2+\frac{n p}{2},\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.\right.$$

$$2\left(-2\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,n\,p,\,3,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+ n\,p\,\text{AppellF1}\left[2+\frac{n\,p}{2},\,1+n\,p,\,2,\,3+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)\Bigg)\Bigg)$$

Problem 173: Result more than twice size of optimal antiderivative.

$$\int \text{Csc}[e+f\,x]^3\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p\,dx$$

Optimal (type 5, 92 leaves, 3 steps):

$$-\frac{1}{f\,(2-n\,p)}\left(\text{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\,\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[\frac{1}{2}(-2+n\,p),\,\frac{1}{2}(1+n\,p),\,\frac{n\,p}{2},\,\text{Sin}[e+f\,x]^2\right]\,\text{Sec}[e+f\,x]\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p$$

Result (type 5, 217 leaves):

$$\frac{1}{4\,f\,n\,p\,\left(-4+n^2\,p^2\right)}\left(2\left(-4+n^2\,p^2\right)\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Hypergeometric2F1}\left[\frac{n\,p}{2},\,n\,p,\,1+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\left((2+n\,p)\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^4\,\text{Hypergeometric2F1}\left[n\,p,\,-1+\frac{n\,p}{2},\,\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+(-2+n\,p)\,\text{Hypergeometric2F1}\left[n\,p,\,1+\frac{n\,p}{2},\,2+\frac{n\,p}{2},\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\right)\left(\text{Cos}[e+f\,x]\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^{n\,p}\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p$$

Problem 176: Result more than twice size of optimal antiderivative.

$$\int (d\,\text{Cos}[e+f\,x])^m\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 108 leaves, 4 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},\,\frac{2+m}{2},\,-p,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right](d\,\text{Cos}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{m/2}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 2033 leaves):

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,\frac{2+m}{2},\,-p,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right](d\,\text{Cos}[e+f\,x])^m\,\left(\text{Sec}[e+f\,x]^2\right)^{-1-\frac{m}{2}}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}\right)\Big/$$

$$\left(f\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.\right.\right.$$

$$\left.\left.\left.a\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\frac{4+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)\right.$$

$$\left(\left(6\,a\,b\,p\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\text{Tan}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\right)\Big/\right.$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\frac{4+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(\text{Sec}[e+f\,x]^2\right)^{-m/2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\frac{4+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(6\,a\left(-1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(\text{Sec}[e+f\,x]^2\right)^{-1-\frac{m}{2}}\text{Tan}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\frac{4+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(3\,a\left(\text{Sec}[e+f\,x]^2\right)^{-1-\frac{m}{2}}\text{Tan}[e+f\,x]\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.\right.$$

$$\left.\left.\frac{1}{3}\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},1+\frac{2+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\frac{2+m}{2},-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},\frac{2+m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-a\,(2+m)\,\text{AppellF1}\left[\frac{3}{2},\frac{4+m}{2},-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,\frac{2+m}{2},\,-p,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\left(\text{Sec}[e+f\,x]^2\right)^{-1-\frac{m}{2}}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p$$

$$\Bigg(2\,\Bigg(2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,\frac{2+m}{2},\,1-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-$$

$$a\,(2+m)\,\text{AppellF1}\Big[\frac{3}{2},\,\frac{4+m}{2},\,-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Bigg)\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$3\,a\,\Bigg(\frac{2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,\frac{2+m}{2},\,1-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-$$

$$\frac{1}{3}\,(2+m)\,\text{AppellF1}\Big[\frac{3}{2},\,1+\frac{2+m}{2},\,-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)+$$

$$\text{Tan}[e+f\,x]^2\,\Bigg(2\,b\,p\,\Bigg(-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\Big[\frac{5}{2},\,\frac{2+m}{2},\,2-p,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-$$

$$\frac{3}{5}\,(2+m)\,\text{AppellF1}\Big[\frac{5}{2},\,1+\frac{2+m}{2},\,1-p,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)-$$

$$a\,(2+m)\,\Bigg(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\Big[\frac{5}{2},\,\frac{4+m}{2},\,1-p,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-$$

$$\frac{3}{5}\,(4+m)\,\text{AppellF1}\Big[\frac{5}{2},\,1+\frac{4+m}{2},\,-p,\,\frac{7}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg(3\,a\,\text{AppellF1}\Big[\frac{1}{2},\,\frac{2+m}{2},\,-p,\,\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]+\Bigg(2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},\,\frac{2+m}{2},\,1-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]-a\,(2+m)\,\text{AppellF1}\Big[\frac{3}{2},\,\frac{4+m}{2},\,-p,\,\frac{5}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)^2\Bigg)\Bigg)$$

- **Problem 204: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^6\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^2\,dx$$

Optimal (type 3, 113 leaves, 4 steps):

$$-(a-b)^2\,x+\frac{(a-b)^2\,\text{Tan}[e+f\,x]}{f}-\frac{(a-b)^2\,\text{Tan}[e+f\,x]^3}{3\,f}+\frac{(a-b)^2\,\text{Tan}[e+f\,x]^5}{5\,f}+\frac{(2\,a-b)\,b\,\text{Tan}[e+f\,x]^7}{7\,f}+\frac{b^2\,\text{Tan}[e+f\,x]^9}{9\,f}$$

Result (type 3, 278 leaves):

$$-a^2 x+2 a b x-b^2 x+\frac{23 a^2 \operatorname{Tan}[e+f x]}{15 f}-\frac{352 a b \operatorname{Tan}[e+f x]}{105 f}+\frac{563 b^2 \operatorname{Tan}[e+f x]}{315 f}-\frac{11 a^2 \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{15 f}+\frac{244 a b \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{105 f}-\frac{506 b^2 \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{315 f}+\frac{a^2 \operatorname{Sec}[e+f x]^4 \operatorname{Tan}[e+f x]}{5 f}-\frac{44 a b \operatorname{Sec}[e+f x]^4 \operatorname{Tan}[e+f x]}{35 f}+\frac{136 b^2 \operatorname{Sec}[e+f x]^4 \operatorname{Tan}[e+f x]}{105 f}+\frac{2 a b \operatorname{Sec}[e+f x]^6 \operatorname{Tan}[e+f x]}{7 f}-\frac{37 b^2 \operatorname{Sec}[e+f x]^6 \operatorname{Tan}[e+f x]}{63 f}+\frac{b^2 \operatorname{Sec}[e+f x]^8 \operatorname{Tan}[e+f x]}{9 f}$$

- **Problem 205: Result more than twice size of optimal antiderivative.**

$$\int \operatorname{Tan}[e+f x]^4 \left(a+b \operatorname{Tan}[e+f x]^2\right)^2 dx$$

Optimal (type 3, 91 leaves, 4 steps):

$$(a-b)^2 x-\frac{(a-b)^2 \operatorname{Tan}[e+f x]}{f}+\frac{(a-b)^2 \operatorname{Tan}[e+f x]^3}{3 f}+\frac{(2 a-b) b \operatorname{Tan}[e+f x]^5}{5 f}+\frac{b^2 \operatorname{Tan}[e+f x]^7}{7 f}$$

Result (type 3, 205 leaves):

$$a^2 x-2 a b x+b^2 x-\frac{4 a^2 \operatorname{Tan}[e+f x]}{3 f}+\frac{46 a b \operatorname{Tan}[e+f x]}{15 f}-\frac{176 b^2 \operatorname{Tan}[e+f x]}{105 f}+\frac{a^2 \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{3 f}-\frac{22 a b \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{15 f}+\frac{122 b^2 \operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]}{105 f}+\frac{2 a b \operatorname{Sec}[e+f x]^4 \operatorname{Tan}[e+f x]}{5 f}-\frac{22 b^2 \operatorname{Sec}[e+f x]^4 \operatorname{Tan}[e+f x]}{35 f}+\frac{b^2 \operatorname{Sec}[e+f x]^6 \operatorname{Tan}[e+f x]}{7 f}$$

- **Problem 249: Result more than twice size of optimal antiderivative.**

$$\int \frac{\operatorname{Cot}[e+f x]^6}{\left(a+b \operatorname{Tan}[e+f x]^2\right)^3} dx$$

Optimal (type 3, 297 leaves, 9 steps):

$$-\frac{x}{(a-b)^3}+\frac{b^{7/2} \left(99 a^2-154 a b+63 b^2\right) \operatorname{ArcTan}\left[\frac{\sqrt{b} \operatorname{Tan}[e+f x]}{\sqrt{a}}\right]}{8 a^{11/2} (a-b)^3 f}-\frac{\left(8 a^4+8 a^3 b+8 a^2 b^2-91 a b^3+63 b^4\right) \operatorname{Cot}[e+f x]}{8 a^5 (a-b)^2 f}+\frac{\left(8 a^3+8 a^2 b-91 a b^2+63 b^3\right) \operatorname{Cot}[e+f x]^3}{24 a^4 (a-b)^2 f}-\frac{\left(8 a^2-91 a b+63 b^2\right) \operatorname{Cot}[e+f x]^5}{40 a^3 (a-b)^2 f}-\frac{b \operatorname{Cot}[e+f x]^5}{4 a (a-b) f \left(a+b \operatorname{Tan}[e+f x]^2\right)^2}-\frac{(13 a-9 b) b \operatorname{Cot}[e+f x]^5}{8 a^2 (a-b)^2 f \left(a+b \operatorname{Tan}[e+f x]^2\right)}$$

Result (type 3, 949 leaves):

$$\frac{b^{7/2}\left(99 a^2-154 a b+63 b^2\right) \text{ArcTan}\left[\frac{\sqrt{b}\ \text{Tan}[e+f x]}{\sqrt{a}}\right]}{8 a^{11/2} (a-b)^3 f}+\frac{1}{7680 a^5 (a-b)^3 f\ (a+b+a \text{Cos}[2 (e+f x)]-b \text{Cos}[2 (e+f x)])^2}$$

$$\text{Csc}[e+f x]^5 \left(-3184 a^7 \text{Cos}[e+f x]+7440 a^6 b \text{Cos}[e+f x]-12000 a^5 b^2 \text{Cos}[e+f x]+10240 a^4 b^3 \text{Cos}[e+f x]+6450 a^3 b^4 \text{Cos}[e+f x]+ 714 a^2 b^5 \text{Cos}[e+f x]-22890 a b^6 \text{Cos}[e+f x]+13230 b^7 \text{Cos}[e+f x]-1536 a^7 \text{Cos}[3 (e+f x)]+7648 a^6 b \text{Cos}[3 (e+f x)]- 2912 a^5 b^2 \text{Cos}[3 (e+f x)]-1152 a^4 b^3 \text{Cos}[3 (e+f x)]-14872 a^3 b^4 \text{Cos}[3 (e+f x)]-12796 a^2 b^5 \text{Cos}[3 (e+f x)]+ 52080 a b^6 \text{Cos}[3 (e+f x)]-26460 b^7 \text{Cos}[3 (e+f x)]-704 a^7 \text{Cos}[5 (e+f x)]+2656 a^6 b \text{Cos}[5 (e+f x)]-4128 a^5 b^2 \text{Cos}[5 (e+f x)]- 3712 a^4 b^3 \text{Cos}[5 (e+f x)]+5504 a^3 b^4 \text{Cos}[5 (e+f x)]+27684 a^2 b^5 \text{Cos}[5 (e+f x)]-46200 a b^6 \text{Cos}[5 (e+f x)]+18900 b^7 \text{Cos}[5 (e+f x)]- 536 a^7 \text{Cos}[7 (e+f x)]+248 a^6 b \text{Cos}[7 (e+f x)]+768 a^5 b^2 \text{Cos}[7 (e+f x)]+128 a^4 b^3 \text{Cos}[7 (e+f x)]+6553 a^3 b^4 \text{Cos}[7 (e+f x)]- 21441 a^2 b^5 \text{Cos}[7 (e+f x)]+20895 a b^6 \text{Cos}[7 (e+f x)]-6615 b^7 \text{Cos}[7 (e+f x)]-184 a^7 \text{Cos}[9 (e+f x)]+440 a^6 b \text{Cos}[9 (e+f x)]- 160 a^5 b^2 \text{Cos}[9 (e+f x)]+640 a^4 b^3 \text{Cos}[9 (e+f x)]-3635 a^3 b^4 \text{Cos}[9 (e+f x)]+5839 a^2 b^5 \text{Cos}[9 (e+f x)]-3885 a b^6 \text{Cos}[9 (e+f x)]+ 945 b^7 \text{Cos}[9 (e+f x)]-720 a^7 (e+f x) \text{Sin}[e+f x]-3360 a^6 b (e+f x) \text{Sin}[e+f x]-15120 a^5 b^2 (e+f x) \text{Sin}[e+f x]- 480 a^7 (e+f x) \text{Sin}[3 (e+f x)]+10080 a^5 b^2 (e+f x) \text{Sin}[3 (e+f x)]+480 a^7 (e+f x) \text{Sin}[5 (e+f x)]+1920 a^6 b (e+f x) \text{Sin}[5 (e+f x)]- 4320 a^5 b^2 (e+f x) \text{Sin}[5 (e+f x)]+120 a^7 (e+f x) \text{Sin}[7 (e+f x)]-1200 a^6 b (e+f x) \text{Sin}[7 (e+f x)]+ 1080 a^5 b^2 (e+f x) \text{Sin}[7 (e+f x)]-120 a^7 (e+f x) \text{Sin}[9 (e+f x)]+240 a^6 b (e+f x) \text{Sin}[9 (e+f x)]-120 a^5 b^2 (e+f x) \text{Sin}[9 (e+f x)]\right)$$

- **Problem 265: Result more than twice size of optimal antiderivative.**

$$\int \sqrt{a+a \text{Tan}[c+d x]^2}\, dx$$

Optimal (type 3, 36 leaves, 4 steps):

$$\frac{\sqrt{a}\ \text{ArcTanh}\left[\frac{\sqrt{a}\ \text{Tan}[c+d x]}{\sqrt{a \text{Sec}[c+d x]^2}}\right]}{d}$$

Result (type 3, 74 leaves):

$$-\frac{1}{d}\text{Cos}[c+d x] \left(\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]\right) \sqrt{a \text{Sec}[c+d x]^2}$$

- **Problem 270: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[x]^2 \left(a+a \text{Tan}[x]^2\right)^{3/2} dx$$

Optimal (type 3, 33 leaves, 5 steps):

$$a \text{ArcTanh}[\text{Sin}[x]] \text{Cos}[x] \sqrt{a \text{Sec}[x]^2}-a \text{Cot}[x] \sqrt{a \text{Sec}[x]^2}$$

Result (type 3, 67 leaves):

$$-\frac{1}{2} a \text{Cos}[x] \text{Csc}\left[\frac{x}{2}\right] \text{Sec}\left[\frac{x}{2}\right] \sqrt{a \text{Sec}[x]^2} \left(1+\left(\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right) \text{Sin}[x]\right)$$

- **Problem 287: Result more than twice size of optimal antiderivative.**

$$\int \left(1+\text{Tan}[x]^2\right)^{3/2} dx$$

Optimal (type 3, 22 leaves, 4 steps):

$$\frac{1}{2}\,\text{ArcSinh}[\text{Tan}[x]]+\frac{1}{2}\sqrt{\text{Sec}[x]^2}\ \text{Tan}[x]$$

Result (type 3, 52 leaves):

$$\frac{1}{2}\,\text{Cos}[x]\ \sqrt{\text{Sec}[x]^2}\ \left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Sec}[x]\ \text{Tan}[x]\right)$$

- **Problem 288: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{1+\text{Tan}[x]^2}\ dx$$

Optimal (type 3, 3 leaves, 3 steps):

$$\text{ArcSinh}[\text{Tan}[x]]$$

Result (type 3, 44 leaves):

$$\text{Cos}[x]\ \left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)\ \sqrt{\text{Sec}[x]^2}$$

- **Problem 290: Result more than twice size of optimal antiderivative.**

$$\int\left(-1-\text{Tan}[x]^2\right)^{3/2}\ dx$$

Optimal (type 3, 35 leaves, 5 steps):

$$\frac{1}{2}\,\text{ArcTan}\left[\frac{\text{Tan}[x]}{\sqrt{-\text{Sec}[x]^2}}\right]-\frac{1}{2}\sqrt{-\text{Sec}[x]^2}\ \text{Tan}[x]$$

Result (type 3, 72 leaves):

$$\frac{1}{4}\,\text{Cos}[x]\ \sqrt{-\text{Sec}[x]^2}\ \left(2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]-2\,\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]+\frac{1}{\left(\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right)^2}+\frac{1}{-1+\text{Sin}[x]}\right)$$

- **Problem 291: Result more than twice size of optimal antiderivative.**

$$\int\sqrt{-1-\text{Tan}[x]^2}\ dx$$

Optimal (type 3, 16 leaves, 4 steps):

$$-\text{ArcTan}\left[\frac{\text{Tan}[x]}{\sqrt{-\text{Sec}[x]^2}}\right]$$

Result (type 3, 46 leaves):

$$\text{Cos}[x]\ \left(-\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]-\text{Sin}\left[\frac{x}{2}\right]\right]+\text{Log}\left[\text{Cos}\left[\frac{x}{2}\right]+\text{Sin}\left[\frac{x}{2}\right]\right]\right)\ \sqrt{-\text{Sec}[x]^2}$$

Problem 293: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[e+f\,x]^5\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 117 leaves, 7 steps):

$$-\frac{\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}-\frac{(a+b)\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}{3\,b^2\,f}+\frac{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}{5\,b^2\,f}$$

Result (type 3, 445 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\frac{-2\,a^2-6\,a\,b+23\,b^2}{15\,b^2}+\frac{(a-11\,b)\,\mathrm{Sec}[e+f\,x]^2}{15\,b}+\frac{1}{5}\,\mathrm{Sec}[e+f\,x]^4\right)}{f}-$$

$$\left(\sqrt{a-b}\,\left(1+\mathrm{Cos}[e+f\,x]\right)\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\right)\Big/$$

$$\left(f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)$$

Problem 294: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[e+f\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 88 leaves, 6 steps):

$$\frac{\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}-\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}+\frac{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}{3\,b\,f}$$

Result (type 3, 414 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\frac{a-4\,b}{3\,b}+\frac{1}{3}\,\mathrm{Sec}[e+f\,x]^2\right)}{f}+$$

$$\left(\sqrt{a-b}\,\left(1+\mathrm{Cos}[e+f\,x]\right)\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 295: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 62 leaves, 5 steps) :

$$-\frac{\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}$$

Result (type 3, 199 leaves) :

$$\frac{1}{\sqrt{2}\, f}\left(1+\left(\sqrt{2}\,\sqrt{a-b}\,\text{Cos}[e+f x]\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.\right.$$

$$\left.\left.\text{Log}\left[a-b+\frac{\sqrt{a-b}\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4}}{\sqrt{2}}+(-a+b)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right)\Big/$$

$$\left.\left(\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^4}\right)\right)\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Sec}[e+f x]^2}$$

- **Problem 296: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 74 leaves, 7 steps) :

$$-\frac{\sqrt{a}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{f}+\frac{\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{f}$$

Result (type 3, 531 leaves) :

$$-\left(\left((1+\cos[e+fx])\sqrt{\frac{1+\cos[2(e+fx)]}{(1+\cos[e+fx])^2}}\sqrt{\frac{a+b+(a-b)\cos[2(e+fx)]}{1+\cos[2(e+fx)]}}\left(\sqrt{a}\,\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2\sqrt{a-b}\,\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.\right.\right.$$

$$\sqrt{a}\,\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]+$$

$$\sqrt{a}\,\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]+$$

$$\left.2\sqrt{a-b}\,\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a-b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\right)\Bigg/$$

$$\left.\left(2\,f\sqrt{a+b+(a-b)\cos[2(e+fx)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\right)$$

- **Problem 297: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+fx]^3\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}\,dx$$

Optimal (type 3, 115 leaves, 8 steps):

$$\frac{(2a-b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}{\sqrt{a}}\right]}{2\sqrt{a}\,f}-\frac{\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}{\sqrt{a-b}}\right]}{f}-\frac{\mathrm{Cot}[e+fx]^2\sqrt{a+b\,\mathrm{Tan}[e+fx]^2}}{2f}$$

Result (type 3, 1217 leaves):

$$\frac{\sqrt{\frac{a+b+a\cos[2(e+fx)]-b\cos[2(e+fx)]}{1+\cos[2(e+fx)]}}\left(\frac{1}{2}-\frac{1}{2}\mathrm{Csc}[e+fx]^2\right)}{f}+$$

$$\frac{1}{2 f}\left(\left((3 a-b)(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.\right.$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]+$$

$$\left.\text{Log}\left[2 b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\right)\Big/$$

$$\left(4\sqrt{a}\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}}\,3(a-b)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(-\left(\left(4\,\text{Cos}[e+f x]^2(1-\text{Cos}[2(e+f x)])\sqrt{2 b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)])}\,\text{Cot}[e+f x]\right.\right.\right.$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\text{Cos}[2(e+f x)]}}{\sqrt{2 b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)])}}\right]-\sqrt{a}\,\text{Log}\left[a\sqrt{1+\text{Cos}[2(e+f x)]}-\right.\right.$$

$$\left.\left.\left.b\sqrt{1+\text{Cos}[2(e+f x)]}+\sqrt{a-b}\sqrt{2 b+a(1+\text{Cos}[2(e+f x)])-b(1+\text{Cos}[2(e+f x)])}\,\right]\right)\text{Sin}[2(e+f x)]\right)\Big/\left(3\sqrt{a}\sqrt{a-b}\right.$$

$$\left.\left.(1+\text{Cos}[2(e+f x)])\sqrt{-(-1+\text{Cos}[2(e+f x)])(1+\text{Cos}[2(e+f x)])}\sqrt{a+b+(a-b)\text{Cos}[2(e+f x)]}\sqrt{1-\text{Cos}[2(e+f x)]^2}\right)\right)+$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2 b\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\,\Bigg]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\sqrt{a}\,\sqrt{1+\text{Cos}[2(e+fx)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

Problem 298: Result more than twice size of optimal antiderivative.

$$\int\text{Cot}[e+fx]^5\sqrt{a+b\,\text{Tan}[e+fx]^2}\,dx$$

Optimal (type 3, 163 leaves, 9 steps):

$$-\frac{\left(8a^2-4ab-b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a}}\right]}{8a^{3/2}f}+\frac{\sqrt{a-b}\;\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+fx]^2}}{\sqrt{a-b}}\right]}{f}+$$

$$\frac{(4a-b)\,\text{Cot}[e+fx]^2\sqrt{a+b\,\text{Tan}[e+fx]^2}}{8af}-\frac{\text{Cot}[e+fx]^4\sqrt{a+b\,\text{Tan}[e+fx]^2}}{4f}$$

Result (type 3, 1266 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2(e+fx)]-b\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\left(-\frac{6a-b}{8a}+\frac{(8a-b)\,\text{Csc}[e+fx]^2}{8a}-\frac{1}{4}\text{Csc}[e+fx]^4\right)}{f}+$$

$$\frac{1}{4af}\Bigg(-\Bigg(\Bigg(\Bigg(\left(6a^2-2ab-b^2\right)(1+\text{Cos}[e+fx])\sqrt{\frac{1+\text{Cos}[2(e+fx)]}{(1+\text{Cos}[e+fx])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\,\right]+$$

$$\text{Log}\left[2 b + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right) + \sqrt{a} \sqrt{4 b \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}\right]\Bigg)$$

$$\left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right) \left(1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right) \sqrt{\frac{4 b \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}{\left(1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}} \Bigg) \Big/$$

$$\left(4 \sqrt{a} \sqrt{a + b + (a - b) \,\text{Cos}[2 (e + f x)]} \sqrt{\left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2} \sqrt{4 b \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}\right)\Bigg) +$$

$$\frac{1}{\sqrt{a + b + (a - b) \,\text{Cos}[2 (e + f x)]}} 3 \left(2 a^2 - 2 a b\right) \sqrt{1 + \text{Cos}[2 (e + f x)]} \sqrt{\frac{a + b + (a - b) \,\text{Cos}[2 (e + f x)]}{1 + \text{Cos}[2 (e + f x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4 \,\text{Cos}[e + f x]^2 (1 - \text{Cos}[2 (e + f x)]) \sqrt{2 b + a (1 + \text{Cos}[2 (e + f x)]) - b (1 + \text{Cos}[2 (e + f x)])} \,\text{Cot}[e + f x]$$

$$\left(\sqrt{a - b} \,\text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{1 + \text{Cos}[2 (e + f x)]}}{\sqrt{2 b + a (1 + \text{Cos}[2 (e + f x)]) - b (1 + \text{Cos}[2 (e + f x)])}}\right] - \sqrt{a} \,\text{Log}\Big[a \sqrt{1 + \text{Cos}[2 (e + f x)]} -\right.$$

$$\left.b \sqrt{1 + \text{Cos}[2 (e + f x)]} + \sqrt{a - b} \sqrt{2 b + a (1 + \text{Cos}[2 (e + f x)]) - b (1 + \text{Cos}[2 (e + f x)])}\Big]\right) \text{Sin}[2 (e + f x)]\Bigg) \Big/ \Bigg(3 \sqrt{a} \sqrt{a - b}$$

$$(1 + \text{Cos}[2 (e + f x)]) \sqrt{-(-1 + \text{Cos}[2 (e + f x)]) (1 + \text{Cos}[2 (e + f x)])} \sqrt{a + b + (a - b) \,\text{Cos}[2 (e + f x)]} \sqrt{1 - \text{Cos}[2 (e + f x)]^2}\Bigg)\Bigg) +$$

$$\Bigg((1 + \text{Cos}[e + f x]) \sqrt{\frac{1 + \text{Cos}[2 (e + f x)]}{(1 + \text{Cos}[e + f x])^2}} \Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right] - \text{Log}\Big[a - a \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + 2 b$$

$$\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + \sqrt{a} \sqrt{4 b \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}\Big] +$$

$$\text{Log}\left[2 b + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right) + \sqrt{a} \sqrt{4 b \,\text{Tan}\left[\frac{1}{2} (e + f x)\right]^2 + a \left(-1 + \text{Tan}\left[\frac{1}{2} (e + f x)\right]^2\right)^2}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a}\,\sqrt{1+\text{Cos}[2(e+f x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 299: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f x]^6\sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 222 leaves, 9 steps) :

$$-\frac{\sqrt{a-b}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}+\frac{\left(a^3+2a^2b+8ab^2-16b^3\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{16\,b^{5/2}\,f}-$$

$$\frac{(a-2b)(a+4b)\,\text{Tan}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{16\,b^2 f}+\frac{(a-6b)\,\text{Tan}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{24\,b\,f}+\frac{\text{Tan}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{6\,f}$$

Result (type 4, 823 leaves) :

$$\frac{1}{8\,b^2 f}\left(-\left(b\left(a^3+2a^2b-8b^3\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2(e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+f x)])\right)\Big)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\,4\,b\left(-8ab^2+8b^3\right)\sqrt{1+\text{Cos}[2(e+f x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\text{Sin}[e+f x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f x)]-b\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\,\left(\frac{\text{Sec}[e+f x]^3\,(a\,\text{Sin}[e+f x]-14\,b\,\text{Sin}[e+f x])}{24\,b}+\right.$$

$$\frac{\text{Sec}[e+f x]\,\left(-3\,a^2\,\text{Sin}[e+f x]-8\,a\,b\,\text{Sin}[e+f x]+44\,b^2\,\text{Sin}[e+f x]\right)}{48\,b^2}+$$

$$\left.\frac{1}{6}\,\text{Sec}[e+f x]^4\,\text{Tan}[e+f x]\right)$$

- **Problem 300: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f x]^4\,\sqrt{a+b\,\text{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 169 leaves, 8 steps) :

$$\frac{\sqrt{a-b}\;\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(a^2+4 a b-8 b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\;\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{8 b^{3/2} f}+$$

$$\frac{(a-4 b)\,\text{Tan}[e+f x]\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{8 b f}+\frac{\text{Tan}[e+f x]^3\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}{4 f}$$

Result (type 4, 767 leaves):

$$-\frac{1}{4 b f}\Bigg(\Bigg(-b\left(a^2-4 b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\;\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\text{Csc}[2 (e+f x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\Bigg)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\right)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}}\,4 b\left(-4 a b+4 b^2\right)\sqrt{1+\text{Cos}[2 (e+f x)]}\;\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\text{Csc}[2 (e+f x)]\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\Bigg)\Big/$$

$$\left(4 a\sqrt{1+\text{Cos}[2 (e+f x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2 (e+f x)]}\right)-\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2 (e+f x)])\,\text{Csc}[e+f x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]\ \text{EllipticPi}\Big[-\frac{b}{a-b},\ \text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],$$

$$1\Big]\ \text{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\ \left(\frac{\text{Sec}[e+f\,x]\,(a\,\text{Sin}[e+f\,x]-6\,b\,\text{Sin}[e+f\,x])}{8\,b}+\frac{1}{4}\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)}{f}$$

- **Problem 301: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 123 leaves, 7 steps):

$$-\frac{\sqrt{a-b}\ \text{ArcTan}\Big[\frac{\sqrt{a-b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\Big]}{f}+\frac{(a-2\,b)\ \text{ArcTanh}\Big[\frac{\sqrt{b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\Big]}{2\,\sqrt{b}\,f}+\frac{\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{2\,f}$$

Result (type 4, 708 leaves):

$$\Bigg(b^2\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\ \sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \text{Csc}[2\,(e+f\,x)]\ \text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],\ 1\Big]\ \text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$(a\,f\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))+\frac{1}{f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,(a-b)\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]\right.\right.$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)+\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\mathrm{Tan}[e+f\,x]}{2\,f}$$

- **Problem 302: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 85 leaves, 6 steps):

$$\frac{\sqrt{a-b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{f}+\frac{\sqrt{b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{f}$$

Result (type 3, 203 leaves):

$$\frac{1}{2 f}\left(-i \sqrt{a-b}\, \text{Log}\left[-\frac{4 i \left(a-i b \,\text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} (i+\text{Tan}[e+f x])}\right]+\right.$$
$$\left. i \sqrt{a-b}\, \text{Log}\left[\frac{4 i \left(a+i b \,\text{Tan}[e+f x]+\sqrt{a-b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right)}{(a-b)^{3/2} (-i+\text{Tan}[e+f x])}\right]+2 \sqrt{b}\, \text{Log}\left[b \,\text{Tan}[e+f x]+\sqrt{b} \sqrt{a+b \,\text{Tan}[e+f x]^2}\right]\right)$$

- **Problem 303: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^2 \sqrt{a+b \,\text{Tan}[e+f x]^2}\, dx$$

Optimal (type 3, 75 leaves, 5 steps):

$$-\frac{\sqrt{a-b}\, \text{ArcTan}\left[\frac{\sqrt{a-b}\, \text{Tan}[e+f x]}{\sqrt{a+b \,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\text{Cot}[e+f x] \sqrt{a+b \,\text{Tan}[e+f x]^2}}{f}$$

Result (type 4, 705 leaves):

$$-\frac{\sqrt{\frac{a+b+a \,\text{Cos}[2 (e+f x)]-b \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}\, \text{Cot}[e+f x]}{f}-$$
$$\frac{1}{f}(a-b)\left(-\left(b \sqrt{\frac{a+b+(a-b) \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a \,\text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \,\text{Csc}[e+f x]^2}{b}}\right.\right.$$
$$\sqrt{\frac{(a+b+(a-b) \,\text{Cos}[2 (e+f x)]) \,\text{Csc}[e+f x]^2}{b}}\, \text{Csc}[2 (e+f x)]$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \,\text{Cos}[2 (e+f x)]) \,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/ \left(a (a+b+(a-b) \,\text{Cos}[2 (e+f x)])\right)-$$
$$\frac{1}{\sqrt{a+b+(a-b) \,\text{Cos}[2 (e+f x)]}}\, 4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \,\text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\right)\Big/$$

$$\left(4\,a\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\mathrm{Csc}[2\,(e+f x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\mathrm{Sin}[e+f x]^4\right)\Big/\left(2\,(a-b)\sqrt{1+\mathrm{Cos}[2\,(e+f x)]}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f x)]}\right)\right)$$

- **Problem 304: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f x]^4\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}\,dx$$

Optimal (type 3, 117 leaves, 6 steps):

$$\frac{\sqrt{a-b}\,\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{f}+\frac{(3\,a-b)\,\mathrm{Cot}[e+f x]\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{3\,a\,f}-\frac{\mathrm{Cot}[e+f x]^3\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{3\,f}$$

Result (type 4, 748 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f x)]-b\,\mathrm{Cos}[2\,(e+f x)]}{1+\mathrm{Cos}[2\,(e+f x)]}}\left(\frac{(4\,a\,\mathrm{Cos}[e+f x]-b\,\mathrm{Cos}[e+f x])\,\mathrm{Csc}[e+f x]}{3\,a}-\frac{1}{3}\,\mathrm{Cot}[e+f x]\,\mathrm{Csc}[e+f x]^2\right)}{f}+$$

$$\frac{1}{f}(a-b)\left(-\left(b\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\ (a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$1\Big]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)$$

- **Problem 305: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f\,x]^6\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,dx$$

Optimal (type 3, 167 leaves, 7 steps):

$$-\frac{\sqrt{a-b}\,\mathrm{ArcTan}\Big[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\Big]}{f}-\frac{\left(15\,a^2-5\,a\,b-2\,b^2\right)\,\mathrm{Cot}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{15\,a^2\,f}+$$
$$\frac{(5\,a-b)\,\mathrm{Cot}[e+f\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{15\,a\,f}-\frac{\mathrm{Cot}[e+f\,x]^5\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{5\,f}$$

Result (type 4, 797 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\frac{\left(-23\,a^2\,\mathrm{Cos}[e+f\,x]+6\,a\,b\,\mathrm{Cos}[e+f\,x]+2\,b^2\,\mathrm{Cos}[e+f\,x]\right)\,\mathrm{Csc}[e+f\,x]}{15\,a^2}+\right.$$
$$\left.\frac{(11\,a\,\mathrm{Cos}[e+f\,x]-b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]^3}{15\,a}-\frac{1}{5}\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^4\right)-$$

$$\frac{1}{f}\,(a-b)\,\Bigg(\Bigg(-b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticF}\Bigg[\mathrm{ArcSin}\Bigg[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Bigg],\,1\Bigg]\,\mathrm{Sin}[e+f\,x]^4\Bigg)\Bigg/\,(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\Big[\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],\,1\Big]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big)-\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\Big[-\frac{b}{a-b},\,\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],$$

$$1\Big]\,\text{Sin}[e+f\,x]^4\Bigg)\Big/\Big(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\Big)\Bigg)\Bigg)$$

- **Problem 306: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^5\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 145 leaves, 8 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTanh}\Big[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\Big]}{f}+\frac{(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}+$$

$$\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{3\,f}-\frac{(a+b)\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}{5\,b^2\,f}+\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{7/2}}{7\,b^2\,f}$$

Result (type 3, 483 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{2\,\left(3\,a^3+12\,a^2\,b-103\,a\,b^2+88\,b^3\right)}{105\,b^2}+\frac{\left(3\,a^2-90\,a\,b+122\,b^2\right)\,\text{Sec}[e+f\,x]^2}{105\,b}+\frac{2}{35}\,(4\,a-11\,b)\,\text{Sec}[e+f\,x]^4+\frac{1}{7}\,b\,\text{Sec}[e+f\,x]^6\right)-$$

$$\left((a-b)^{3/2}\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left(f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 307: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 116 leaves, 7 steps):

$$\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}-\frac{(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}-\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{3\,f}+\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}{5\,b\,f}$$

Result (type 3, 444 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{3\,a^2-26\,a\,b+23\,b^2}{15\,b}+\frac{1}{15}\,(6\,a-11\,b)\,\text{Sec}[e+f\,x]^2+\frac{1}{5}\,b\,\text{Sec}[e+f\,x]^4\right)}{f}+$$

$$\left((a-b)^{3/2}\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\right)\Bigg/$$

$$\left(f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)$$

- **Problem 308: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 90 leaves, 6 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}+\frac{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}{3\,f}$$

Result (type 3, 413 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\frac{4\,(a-b)}{3}+\frac{1}{3}\,b\,\mathrm{Sec}[e+f\,x]^2\right)}{f}-$$

$$\left((a-b)^{3/2}\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 309: Result more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+f\,x]\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 95 leaves, 8 steps):

$$-\frac{a^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{f}+\frac{(a-b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+\frac{b\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{f}$$

Result (type 3, 1216 leaves):

$$\frac{b\,\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}}{f}+$$

$$\frac{1}{2\,f}\left(-\left(\left(\left(3\,a^2+2\,a\,b-b^2\right)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.\right.\right.$$

$$\text{Log}\left[a - a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + 2 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + \sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right] +$$

$$\left.\text{Log}\left[2 b + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) + \sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\right)\Big/$$

$$\left.\left(4\sqrt{a}\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\right) +$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\,3\left(a^2-2 a b+b^2\right)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(-\left(\left(4\,\text{Cos}[e+f x]^2\,(1-\text{Cos}[2(e+f x)])\sqrt{2 b + a(1+\text{Cos}[2(e+f x)]) - b(1+\text{Cos}[2(e+f x)])}\,\text{Cot}[e+f x]\right.\right.\right.$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\text{Cos}[2(e+f x)]}}{\sqrt{2 b + a(1+\text{Cos}[2(e+f x)]) - b(1+\text{Cos}[2(e+f x)])}}\right] - \sqrt{a}\,\text{Log}\left[a\sqrt{1+\text{Cos}[2(e+f x)]}\, -\right.\right.$$

$$\left.\left.\left.b\sqrt{1+\text{Cos}[2(e+f x)]} + \sqrt{a-b}\sqrt{2 b + a(1+\text{Cos}[2(e+f x)]) - b(1+\text{Cos}[2(e+f x)])}\,\right]\right)\text{Sin}[2(e+f x)]\right)\Big/\left(3\sqrt{a}\sqrt{a-b}\right.$$

$$\left.\left.(1+\text{Cos}[2(e+f x)])\sqrt{-(-1+\text{Cos}[2(e+f x)])(1+\text{Cos}[2(e+f x)])}\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\sqrt{1-\text{Cos}[2(e+f x)]^2}\right)\right) +$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - \text{Log}\left[a - a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + 2 b\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + \sqrt{a}\sqrt{4 b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\right] +$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 310: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^3\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 116 leaves, 8 steps):

$$\frac{\sqrt{a}\,(2\,a-3\,b)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{2\,f}-\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}-\frac{a\,\text{Cot}[e+f\,x]^2\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{2\,f}$$

Result (type 3, 1234 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f\,x)]-b\,\text{Cos}[2(e+f\,x)]}{1+\text{Cos}[2(e+f\,x)]}}\left(\frac{a}{2}-\frac{1}{2}a\,\text{Csc}[e+f\,x]^2\right)}{f}+$$

$$\frac{1}{2\,f}\Bigg(\Bigg(\left(3\,a^2-4\,a\,b-b^2\right)(1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f\,x)]}{1+\text{Cos}[2(e+f\,x)]}}$$

$$\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}\sqrt{\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4\,b\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}}\,3\left(a^2-2\,a\,b+b^2\right)\sqrt{1+\operatorname{Cos}[2(e+fx)]}\sqrt{\frac{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}{1+\operatorname{Cos}[2(e+fx)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\operatorname{Cos}[e+fx]^2\,(1-\operatorname{Cos}[2(e+fx)])\sqrt{2\,b+a\,(1+\operatorname{Cos}[2(e+fx)])-b\,(1+\operatorname{Cos}[2(e+fx)])}\operatorname{Cot}[e+fx]$$

$$\left(\sqrt{a-b}\operatorname{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\operatorname{Cos}[2(e+fx)]}}{\sqrt{2\,b+a\,(1+\operatorname{Cos}[2(e+fx)])-b\,(1+\operatorname{Cos}[2(e+fx)])}}\right]-\sqrt{a}\operatorname{Log}\Big[a\sqrt{1+\operatorname{Cos}[2(e+fx)]}-\right.$$

$$\left.b\sqrt{1+\operatorname{Cos}[2(e+fx)]}+\sqrt{a-b}\sqrt{2\,b+a\,(1+\operatorname{Cos}[2(e+fx)])-b\,(1+\operatorname{Cos}[2(e+fx)])}\Big]\right)\operatorname{Sin}[2(e+fx)]\Bigg)\Bigg/\Bigg(3\sqrt{a}\sqrt{a-b}$$

$$(1+\operatorname{Cos}[2(e+fx)])\sqrt{-(-1+\operatorname{Cos}[2(e+fx)])\,(1+\operatorname{Cos}[2(e+fx)])}\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+fx)]}\sqrt{1-\operatorname{Cos}[2(e+fx)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\operatorname{Cos}[e+fx])\sqrt{\frac{1+\operatorname{Cos}[2(e+fx)]}{(1+\operatorname{Cos}[e+fx])^2}}\Bigg(\operatorname{Log}\left[\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\operatorname{Log}\Big[a-a\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2\,b$$

$$\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\Big]+$$

$$\operatorname{Log}\left[2\,b+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4\,b\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right]\Bigg)$$

$$\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 311: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^5\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 161 leaves, 9 steps):

$$-\frac{\left(8\,a^2-12\,a\,b+3\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{8\,\sqrt{a}\,f}+\frac{(a-b)^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{f}+$$
$$\frac{(4\,a-5\,b)\,\text{Cot}[e+f\,x]^2\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,f}-\frac{a\,\text{Cot}[e+f\,x]^4\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{4\,f}$$

Result (type 3, 1261 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{1}{8}\,(-6\,a+5\,b)+\frac{1}{8}\,(8\,a-5\,b)\,\text{Csc}[e+f\,x]^2-\frac{1}{4}\,a\,\text{Csc}[e+f\,x]^4\right)}{f}+$$

$$\frac{1}{4\,f}\left(-\left(\left(\left(6\,a^2-8\,a\,b+b^2\right)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.\right.\right.$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]+$$

$$\left.\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\left(2\,a^2-4\,a\,b+2\,b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\text{Cot}[e+f\,x]$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}}\right]-\sqrt{a}\,\text{Log}\Big[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,-\right.$$

$$\left.b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\Big]\right)\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/\Bigg(3\sqrt{a}\,\sqrt{a-b}$$

$$(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\Big[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\Big]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 312: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+fx]^6\left(a+b\,\text{Tan}[e+fx]^2\right)^{3/2}dx$$

Optimal (type 3, 294 leaves, 10 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{f}+\frac{\left(3a^4+8a^3b+48a^2b^2-192ab^3+128b^4\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+fx]}{\sqrt{a+b\,\text{Tan}[e+fx]^2}}\right]}{128b^{5/2}f}-$$
$$\frac{\left(3a^3+8a^2b-80ab^2+64b^3\right)\text{Tan}[e+fx]\sqrt{a+b\,\text{Tan}[e+fx]^2}}{128b^2f}+\frac{\left(3a^2-56ab+48b^2\right)\text{Tan}[e+fx]^3\sqrt{a+b\,\text{Tan}[e+fx]^2}}{192bf}+$$
$$\frac{(9a-8b)\,\text{Tan}[e+fx]^5\sqrt{a+b\,\text{Tan}[e+fx]^2}}{48f}+\frac{b\,\text{Tan}[e+fx]^7\sqrt{a+b\,\text{Tan}[e+fx]^2}}{8f}$$

Result (type 4, 908 leaves):

$$\frac{1}{64b^2f}\left(-\left(b\left(3a^4+8a^3b-16a^2b^2-64ab^3+64b^4\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}\sqrt{-\frac{a\,\text{Cot}[e+fx]^2}{b}}\right.\right.$$
$$\sqrt{-\frac{a\,(1+\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}\,\text{Csc}[2(e+fx)]$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+fx)])\,\text{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+fx]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+fx)])\right)-$$
$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+fx)]}}4b\left(-64a^2b^2+128ab^3-64b^4\right)\sqrt{1+\text{Cos}[2(e+fx)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+fx)]}{1+\text{Cos}[2(e+fx)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\;\left(\frac{1}{48}\,\mathrm{Sec}[e+f\,x]^5\,(9\,a\,\mathrm{Sin}[e+f\,x]-26\,b\,\mathrm{Sin}[e+f\,x])+\right.$$

$$\frac{\mathrm{Sec}[e+f\,x]^3\,\left(3\,a^2\,\mathrm{Sin}[e+f\,x]-128\,a\,b\,\mathrm{Sin}[e+f\,x]+184\,b^2\,\mathrm{Sin}[e+f\,x]\right)}{192\,b}+$$

$$\frac{\mathrm{Sec}[e+f\,x]\,\left(-9\,a^3\,\mathrm{Sin}[e+f\,x]-30\,a^2\,b\,\mathrm{Sin}[e+f\,x]+424\,a\,b^2\,\mathrm{Sin}[e+f\,x]-400\,b^3\,\mathrm{Sin}[e+f\,x]\right)}{384\,b^2}+$$

$$\left.\frac{1}{8}\,b\,\mathrm{Sec}[e+f\,x]^6\,\mathrm{Tan}[e+f\,x]\right)$$

- **Problem 313: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[e+f\,x]^4\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 224 leaves, 9 steps) :

$$\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{f}-\frac{\left(a^3+6 a^2 b-24 a b^2+16 b^3\right)\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{16 b^{3/2} f}+$$

$$\frac{\left(a^2-10 a b+8 b^2\right)\text{Tan}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{16 b f}+\frac{(7 a-6 b)\,\text{Tan}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{24 f}+\frac{b\,\text{Tan}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{6 f}$$

Result (type 4, 833 leaves) :

$$-\frac{1}{8 b f}\left(\left(-b\left(a^3-2 a^2 b-8 a b^2+8 b^3\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2(e+f x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2(e+f x)])\right))-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\,4 b\left(-8 a^2 b+16 a b^2-8 b^3\right)\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2(e+f x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],$$

$$\left.\left.\left.1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{7}{24}\,\text{Sec}[e+f\,x]^3\,(a\,\text{Sin}[e+f\,x]-2\,b\,\text{Sin}[e+f\,x])+\right.$$

$$\frac{\text{Sec}[e+f\,x]\,\left(3\,a^2\,\text{Sin}[e+f\,x]-44\,a\,b\,\text{Sin}[e+f\,x]+44\,b^2\,\text{Sin}[e+f\,x]\right)}{48\,b}+$$

$$\left.\frac{1}{6}\,b\,\text{Sec}[e+f\,x]^4\,\text{Tan}[e+f\,x]\right)$$

- **Problem 314: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 172 leaves, 8 steps) :

$$-\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}+\frac{\left(3\,a^2-12\,a\,b+8\,b^2\right)\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{8\,\sqrt{b}\,f}+$$

$$\frac{(5\,a-4\,b)\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{8\,f}+\frac{b\,\text{Tan}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{4\,f}$$

Result (type 4, 771 leaves) :

$$\frac{1}{4\,f}\left(\left(b\,\left(a^2+4\,a\,b-4\,b^2\right)\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\;(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\;+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\left(4\,a^2-8\,a\,b+4\,b^2\right)\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\;\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]\;\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\mathrm{Sin}[e+f\,x]^4\right)\Big/\;\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{1}{8}\,\text{Sec}[e+f\,x]\,(5\,a\,\text{Sin}[e+f\,x]-6\,b\,\text{Sin}[e+f\,x])+\frac{1}{4}\,b\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)$$

Problem 315: Result unnecessarily involves imaginary or complex numbers.

$$\int\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 125 leaves, 7 steps):

$$\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}+\frac{(3\,a-2\,b)\,\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{2\,f}+\frac{b\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{2\,f}$$

Result (type 3, 233 leaves):

$$\frac{1}{2\,f}\left(-i\,(a-b)^{3/2}\,\text{Log}\left[-\frac{4\,i\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{(a-b)^{5/2}\,(i+\text{Tan}[e+f\,x])}\right]+\right.$$
$$i\,(a-b)^{3/2}\,\text{Log}\left[\frac{4\,i\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{(a-b)^{5/2}\,(-i+\text{Tan}[e+f\,x])}\right]+$$
$$\left.(3\,a-2\,b)\,\sqrt{b}\,\text{Log}\left[b\,\text{Tan}[e+f\,x]+\sqrt{b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right]+b\,\text{Tan}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)$$

Problem 316: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int\text{Cot}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 114 leaves, 7 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}+\frac{b^{3/2}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}-\frac{a\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{f}$$

Result (type 4, 724 leaves):

$$-\frac{a\,\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Cot}[e+f\,x]}{f}+$$

$$\left(b\left(a^2-2ab-b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$(a\,f\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))+\frac{1}{f\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}$$

$$4\,b\left(a^2-2ab+b^2\right)\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(4\,a\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\cos[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\cos[2\,(e+f\,x)]}\right)\Bigg)$$

Problem 317: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \cot[e+f\,x]^4\,\left(a+b\,\tan[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 115 leaves, 6 steps):

$$\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\,\tan[e+f\,x]}{\sqrt{a+b\,\tan[e+f\,x]^2}}\right]}{f}+\frac{(3\,a-4\,b)\,\cot[e+f\,x]\,\sqrt{a+b\,\tan[e+f\,x]^2}}{3\,f}-\frac{a\,\cot[e+f\,x]^3\,\sqrt{a+b\,\tan[e+f\,x]^2}}{3\,f}$$

Result (type 4, 747 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\cos[2\,(e+f\,x)]-b\,\cos[2\,(e+f\,x)]}{1+\cos[2\,(e+f\,x)]}}\,\left(\frac{4}{3}\,(a\,\cos[e+f\,x]-b\,\cos[e+f\,x])\,\csc[e+f\,x]-\frac{1}{3}\,a\,\cot[e+f\,x]\,\csc[e+f\,x]^2\right)+$$

$$\frac{1}{f}\,(a-b)^2\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\cos[2\,(e+f\,x)]}{1+\cos[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\cot[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\cos[2\,(e+f\,x)])\,\csc[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\cos[2\,(e+f\,x)])\,\csc[e+f\,x]^2}{b}}\,\csc[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\cos[2\,(e+f\,x)])\,\csc[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\sin[e+f\,x]^4\right)\Bigg/\left(a\,(a+b+(a-b)\,\cos[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\cos[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\cos[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\cos[2\,(e+f\,x)]}{1+\cos[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\cot[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\cos[2\,(e+f\,x)])\,\csc[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\cos[2\,(e+f\,x)])\,\csc[e+f\,x]^2}{b}}\right.\right.$$

$$\text{Csc}[2\,(e+f\,x)]\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]\;\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.1\right]\text{Sin}[e+f\,x]^4\right)\Bigg/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)$$

- **Problem 318: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^6\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}\,dx$$

Optimal (type 3, 165 leaves, 7 steps):

$$-\frac{(a-b)^{3/2}\,\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{f}-\frac{\left(15\,a^2-20\,a\,b+3\,b^2\right)\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{15\,a\,f}+$$

$$\frac{(5\,a-6\,b)\,\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{15\,f}-\frac{a\,\text{Cot}[e+f\,x]^5\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{5\,f}$$

Result (type 4, 797 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\left(\frac{\left(-23\,a^2\,\text{Cos}[e+f\,x]+26\,a\,b\,\text{Cos}[e+f\,x]-3\,b^2\,\text{Cos}[e+f\,x]\right)\,\text{Csc}[e+f\,x]}{15\,a}+\right.$$

$$\left.\frac{1}{15}\,(11\,a\,\text{Cos}[e+f\,x]-6\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^3-\frac{1}{5}\,a\,\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^4\right)-$$

$$\frac{1}{f}(a-b)^2\left(-\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\operatorname{Sin}[e+f x]^4\right)\Big/\left(2(a-b)\sqrt{1+\operatorname{Cos}[2(e+f x)]}\sqrt{a+b+(a-b)\operatorname{Cos}[2(e+f x)]}\right)\right)\right)$$

Problem 319: Result unnecessarily involves imaginary or complex numbers.

$$\int\left(a+b\operatorname{Tan}[c+d x]^2\right)^{5/2}dx$$

Optimal (type 3, 170 leaves, 8 steps):

$$\frac{(a-b)^{5/2}\operatorname{ArcTan}\left[\frac{\sqrt{a-b}\operatorname{Tan}[c+d x]}{\sqrt{a+b\operatorname{Tan}[c+d x]^2}}\right]}{d}+\frac{\sqrt{b}\left(15a^2-20ab+8b^2\right)\operatorname{ArcTanh}\left[\frac{\sqrt{b}\operatorname{Tan}[c+d x]}{\sqrt{a+b\operatorname{Tan}[c+d x]^2}}\right]}{8d}+$$
$$\frac{(7a-4b)\,b\operatorname{Tan}[c+d x]\sqrt{a+b\operatorname{Tan}[c+d x]^2}}{8d}+\frac{b\operatorname{Tan}[c+d x]\left(a+b\operatorname{Tan}[c+d x]^2\right)^{3/2}}{4d}$$

Result (type 3, 259 leaves):

$$\frac{1}{8d}\left(-4\,i\,(a-b)^{5/2}\operatorname{Log}\left[-\frac{4\,i\left(a-i\,b\operatorname{Tan}[c+d x]+\sqrt{a-b}\sqrt{a+b\operatorname{Tan}[c+d x]^2}\right)}{(a-b)^{7/2}\,(i+\operatorname{Tan}[c+d x])}\right]+\right.$$
$$4\,i\,(a-b)^{5/2}\operatorname{Log}\left[\frac{4\,i\left(a+i\,b\operatorname{Tan}[c+d x]+\sqrt{a-b}\sqrt{a+b\operatorname{Tan}[c+d x]^2}\right)}{(a-b)^{7/2}\,(-i+\operatorname{Tan}[c+d x])}\right]+$$
$$\left.\sqrt{b}\left(15a^2-20ab+8b^2\right)\operatorname{Log}\left[b\operatorname{Tan}[c+d x]+\sqrt{b}\sqrt{a+b\operatorname{Tan}[c+d x]^2}\right]+b\operatorname{Tan}[c+d x]\sqrt{a+b\operatorname{Tan}[c+d x]^2}\left(9a-4b+2b\operatorname{Tan}[c+d x]^2\right)\right)$$

Problem 320: Result more than twice size of optimal antiderivative.

$$\int\frac{\operatorname{Tan}[e+f x]^5}{\sqrt{a+b\operatorname{Tan}[e+f x]^2}}dx$$

Optimal (type 3, 95 leaves, 6 steps):

$$-\frac{\operatorname{ArcTanh}\left[\frac{\sqrt{a+b\operatorname{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}-\frac{(a+b)\sqrt{a+b\operatorname{Tan}[e+f x]^2}}{b^2 f}+\frac{\left(a+b\operatorname{Tan}[e+f x]^2\right)^{3/2}}{3b^2 f}$$

Result (type 3, 418 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{2\,(a+2\,b)}{3\,b^2}+\frac{\text{Sec}[e+f\,x]^2}{3\,b}\right)}{f}-$$

$$\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\,\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(\sqrt{a-b}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\,\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 321: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[e+f\,x]^3}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 64 leaves, 5 steps) :

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}+\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{b\,f}$$

Result (type 3, 392 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}}{b\,f}+\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left(\sqrt{a-b}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 322: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 41 leaves, 4 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}$$

Result (type 3, 186 leaves):

$$\left(\text{Cos}[e+f\,x]\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\left[a-b+\frac{\sqrt{a-b}\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}}{\sqrt{2}}+(-a+b)\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\right.$$

$$\left.\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^2\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}\right)\Bigg/\left(\sqrt{a-b}\,f\,\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}\left[\frac{1}{2}\,(e+f\,x)\right]^4}\right)$$

Problem 323: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 74 leaves, 7 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{\sqrt{a}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}$$

Result (type 3, 207 leaves):

$$\left(\sqrt{\text{Cos}[e+f x]^2}\left(-\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\text{Cos}[2(e+f x)]}}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\right]+\sqrt{a}\,\text{Log}\left[a\sqrt{1+\text{Cos}[2(e+f x)]}-b\sqrt{1+\text{Cos}[2(e+f x)]}+\sqrt{a-b}\,\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\right]\right)\sqrt{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Sec}[e+f x]^2}\right)\Big/\left(\sqrt{a}\,\sqrt{a-b}\,f\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\right)$$

Problem 324: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]^3}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 116 leaves, 8 steps):

$$\frac{(2a+b)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{2a^{3/2}f}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{\sqrt{a-b}\,f}-\frac{\text{Cot}[e+f x]^2\sqrt{a+b\,\text{Tan}[e+f x]^2}}{2af}$$

Result (type 3, 1223 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\frac{1}{2a}-\frac{\text{Csc}[e+f x]^2}{2a}\right)}{f}-$$

$$\frac{1}{2af}\left(-\left(\left((3a+2b)\,(1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.\right.\right.\right.$$

$$\text{Log}\left[a - a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + 2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + \sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right] +$$

$$\left.\text{Log}\left[2\,b + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right) + \sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right)\right) +$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(\left(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\text{Cot}[e+f\,x]\right.\right.\right.\right.$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}}\right] - \sqrt{a}\,\text{Log}\left[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,-\right.\right.$$

$$\left.\left.\left.b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]} + \sqrt{a-b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\right]\right)\text{Sin}[2\,(e+f\,x)]\right)\Big/\left(3\,\sqrt{a}\,\sqrt{a-b}\right.$$

$$\left.\left.(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\right)\right) +$$

$$\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right] - \text{Log}\left[a - a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + 2\,b\right.\right.\right.$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + \sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2 + a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right] +$$

$$\mathrm{Log}\Big[2\,b+a\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2+a\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^2}\,\Big]\Bigg)$$

$$\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)\left(1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\frac{1}{2}(e+f\,x)\big]^2+a\left(-1+\mathrm{Tan}\big[\frac{1}{2}(e+f\,x)\big]^2\right)^2}{\left(1+\mathrm{Tan}\big[\frac{1}{2}(e+f\,x)\big]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\,\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2+a\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^2}\right)\Bigg)\Bigg)$$

Problem 325: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[e+f\,x]^5}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 166 leaves, 9 steps):

$$-\frac{\left(8\,a^2+4\,a\,b+3\,b^2\right)\mathrm{ArcTanh}\Big[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a}}\Big]}{8\,a^{5/2}\,f}+\frac{\mathrm{ArcTanh}\Big[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\Big]}{\sqrt{a-b}\,f}+$$

$$\frac{(4\,a+3\,b)\,\mathrm{Cot}[e+f\,x]^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{8\,a^2\,f}-\frac{\mathrm{Cot}[e+f\,x]^4\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{4\,a\,f}$$

Result (type 3, 1260 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{3\,(2\,a+b)}{8\,a^2}+\frac{(8\,a+3\,b)\,\mathrm{Csc}[e+f\,x]^2}{8\,a^2}-\frac{\mathrm{Csc}[e+f\,x]^4}{4\,a}\right)}{f}+$$

$$\frac{1}{4\,a^2\,f}\Bigg(-\Bigg(\Bigg(\left(6\,a^2+4\,a\,b+3\,b^2\right)(1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(\mathrm{Log}\Big[\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]-$$

$$\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2+a\left(-1+\mathrm{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\right)^2}\,\Big]+$$

$$\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f\,x)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\right)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f\,x)]}}\,6\,a^2\sqrt{1+\mathrm{Cos}[2(e+f\,x)]}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f\,x)]}{1+\mathrm{Cos}[2(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2(e+f\,x)])\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+f\,x)])-b\,(1+\mathrm{Cos}[2(e+f\,x)])}\;\mathrm{Cot}[e+f\,x]$$

$$\left(\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\mathrm{Cos}[2(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+f\,x)])-b\,(1+\mathrm{Cos}[2(e+f\,x)])}}\right]-\sqrt{a}\,\mathrm{Log}\Big[a\sqrt{1+\mathrm{Cos}[2(e+f\,x)]}\,-\right.$$

$$\left.b\sqrt{1+\mathrm{Cos}[2(e+f\,x)]}+\sqrt{a-b}\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+f\,x)])-b\,(1+\mathrm{Cos}[2(e+f\,x)])}\,\Big]\right)\mathrm{Sin}[2(e+f\,x)]\Bigg)\Bigg/\Bigg(3\sqrt{a}\sqrt{a-b}$$

$$(1+\mathrm{Cos}[2(e+f\,x)])\sqrt{-(-1+\mathrm{Cos}[2(e+f\,x)])\,(1+\mathrm{Cos}[2(e+f\,x)])}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f\,x)]}\sqrt{1-\mathrm{Cos}[2(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\Bigg(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\mathrm{Log}\Big[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+2\,b$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\Big]+$$

$$\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b \,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\sqrt{1+\mathrm{Cos}[2(e+f x)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4 b \,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 326: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Tan}[e+f x]^6}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\,dx$$

Optimal (type 3, 177 leaves, 8 steps) :

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{\sqrt{a-b}\,f}+\frac{\left(3 a^2+4 a b+8 b^2\right)\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{8 b^{5/2} f}-$$

$$\frac{(3 a+4 b)\,\mathrm{Tan}[e+f x]\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{8 b^2 f}+\frac{\mathrm{Tan}[e+f x]^3\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{4 b f}$$

Result (type 4, 768 leaves) :

$$\frac{1}{4 b^2 f}\left(-\left(b\left(3 a^2+4 a b+4 b^2\right)\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\;\mathrm{Csc}[2(e+f x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\right)\Bigg/\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}}\,16 b^3\sqrt{1+\mathrm{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{3\,\mathrm{Sec}[e+f\,x]\,(a\,\mathrm{Sin}[e+f\,x]+2\,b\,\mathrm{Sin}[e+f\,x])}{8\,b^2}+\frac{\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{4\,b}\right)}{f}$$

- **Problem 327: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[e+f\,x]^4}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 125 leaves, 7 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}-\frac{(a+2\,b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{2\,b^{3/2}\,f}+\frac{\mathrm{Tan}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{2\,b\,f}$$

Result (type 4, 713 leaves):

$$-\frac{1}{b\,f}\left(-\left(b\,(a+b)\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b^2\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Tan}[e+f\,x]}{2\,b\,f}$$

- **Problem 328: Result unnecessarily involves higher level functions.**

$$\int\frac{\text{Tan}[e+f\,x]^2}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 86 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{b}\,f}$$

Result (type 4, 149 leaves):

$$\left(a\,\text{Csc}[e+f\,x]^2\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\right.$$

$$\left.\sqrt{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Sec}[e+f\,x]^2}\,\text{Sin}[2\,(e+f\,x)]\right)\Big/\left(2\,(a-b)\,b\,f\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right)$$

- **Problem 329: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 46 leaves, 3 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}$$

Result (type 3, 151 leaves):

$$\frac{i\left(-\text{Log}\left[-\frac{4\,i\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,\left(i+\text{Tan}[e+f\,x]\right)}\right]+\text{Log}\left[\frac{4\,i\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{\sqrt{a-b}\,\left(-i+\text{Tan}[e+f\,x]\right)}\right]\right)}{2\,\sqrt{a-b}\,f}$$

- **Problem 330: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[e+f\,x]^2}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 78 leaves, 5 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\,f}-\frac{\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{a\,f}$$

Result (type 4, 702 leaves):

$$-\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Cot}[e+f\,x]}{a\,f}+\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$(a\,f\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))+\frac{1}{f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\ \sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\ \sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)$$

- **Problem 331: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^4}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 120 leaves, 6 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{\sqrt{a-b}\ f}+\frac{(3\,a+2\,b)\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^2\,f}-\frac{\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a\,f}$$

Result (type 4, 746 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{2\,(2\,a\,\text{Cos}[e+f\,x]+b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a^2}-\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2}{3\,a}\right)}{f}-$$

$$\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\ \sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\ \sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]\;\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],1\Big]\;\mathrm{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$(a\,f\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))-\frac{1}{f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\;4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\mathrm{EllipticF}\Big[\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],1\Big]\;\mathrm{Sin}[e+f\,x]^4\Bigg)\Big/\Big(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\Big)-$$

$$\Bigg(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}$$

$$\mathrm{Csc}[2\,(e+f\,x)]\;\mathrm{EllipticPi}\Big[-\frac{b}{a-b},\,\mathrm{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],1\Big]\;\mathrm{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\Big(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\Big)\Bigg)$$

- **Problem 332: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[e+f\,x]^6}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\,dx$$

Optimal (type 3, 170 leaves, 7 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{\sqrt{a-b}\ f}-\frac{\left(15 a^2+10 a b+8 b^2\right)\text{Cot}[e+f x]\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^3 f}+\frac{(5 a+4 b)\,\text{Cot}[e+f x]^3\sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^2 f}-\frac{\text{Cot}[e+f x]^5\sqrt{a+b\,\text{Tan}[e+f x]^2}}{5 a f}$$

Result (type 4, 794 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(\frac{\left(-23 a^2\text{Cos}[e+f x]-14 a b\,\text{Cos}[e+f x]-8 b^2\text{Cos}[e+f x]\right)\text{Csc}[e+f x]}{15 a^3}+\frac{(11 a\,\text{Cos}[e+f x]+4 b\,\text{Cos}[e+f x])\,\text{Csc}[e+f x]^3}{15 a^2}-\frac{\text{Cot}[e+f x]\,\text{Csc}[e+f x]^4}{5 a}\right)+$$

$$\left(b\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\right.$$

$$\left.\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2(e+f x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/$$

$$(a f\,(a+b+(a-b)\,\text{Cos}[2(e+f x)]))+\frac{1}{f\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}4 b\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\sqrt{-\frac{a\,(1+\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2(e+f x)]\right.\right.$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2(e+f x)])\,\text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f x]^4\right)\Big/\left(4 a\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)$$

- **Problem 333: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[e+f\,x]^5}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 98 leaves, 6 steps):

$$-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}+\frac{a^2}{(a-b)\,b^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}+\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{b^2\,f}$$

Result (type 3, 456 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{2\,a^2-2\,a\,b+b^2}{(a-b)^2\,b^2}-\frac{2\,a^2}{(a-b)^2\,b\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)}{f}-$$

$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left((a-b)^{3/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 334: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 73 leaves, 5 steps) :

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}-\frac{a}{(a-b)\,b\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 439 leaves) :

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{a}{(a-b)^2\,b}+\frac{2\,a}{(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)}{f}+$$

$$\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{3/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 335: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 69 leaves, 5 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}+\frac{1}{(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 434 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{1}{(a-b)^2}-\frac{2\,b}{(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)}{f}-$$

$$\left((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Big/$$

$$\left((a-b)^{3/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 336: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 106 leaves, 8 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{a^{3/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}-\frac{b}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 1262 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{b}{a\,(a-b)^2}+\frac{2\,b^2}{a\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)}{f}+$$

$$\frac{1}{2\,a\,(a-b)\,f}\left(-\left(\left((3\,a-4\,b)\,(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.\right.\right.$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Big/$$

$$\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,3\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f\,x]^2\,(1-\text{Cos}[2\,(e+f\,x)])\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\text{Cot}[e+f\,x]$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}}\right]-\sqrt{a}\,\text{Log}\Big[a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,-\right.$$

$$\left.b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2\,(e+f\,x)])-b\,(1+\text{Cos}[2\,(e+f\,x)])}\,\Big]\right)\text{Sin}[2\,(e+f\,x)]\Bigg)\Big/\Bigg(3\,\sqrt{a}\,\sqrt{a-b}$$

$$(1+\text{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\text{Cos}[2\,(e+f\,x)])\,(1+\text{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\text{Cos}[2\,(e+f\,x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\text{Log}\Big[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b$$

$$\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\Big]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\,\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 337: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 157 leaves, 9 steps):

$$\frac{(2\,a+3\,b)\,\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{2\,a^{5/2}\,f}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}\,f}-\frac{(a-3\,b)\,b}{2\,a^2\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}-\frac{\text{Cot}[e+f\,x]^2}{2\,a\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 1301 leaves):

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{a^2-2\,a\,b+3\,b^2}{2\,a^2\,(a-b)^2}-\frac{2\,b^3}{a^2\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}-\frac{\text{Csc}[e+f\,x]^2}{2\,a^2}\right)}{f}-$$

$$\frac{1}{2\,a^2\,(a-b)\,f}\Bigg(-\Bigg(\Bigg(\left(3\,a^2+2\,a\,b-6\,b^2\right)(1+\text{Cos}[e+f\,x])\,\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-$$

$$\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}}\Bigg)\Bigg/$$

$$\left(4\sqrt{a}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+fx)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\right)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+fx)]}}\,3\,a^2\sqrt{1+\mathrm{Cos}[2(e+fx)]}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+fx)]}{1+\mathrm{Cos}[2(e+fx)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\mathrm{Cos}[e+fx]^2\,(1-\mathrm{Cos}[2(e+fx)])\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+fx)])-b\,(1+\mathrm{Cos}[2(e+fx)])}\,\mathrm{Cot}[e+fx]$$

$$\left(\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\sqrt{1+\mathrm{Cos}[2(e+fx)]}}{\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+fx)])-b\,(1+\mathrm{Cos}[2(e+fx)])}}\right]-\sqrt{a}\,\mathrm{Log}\Big[a\sqrt{1+\mathrm{Cos}[2(e+fx)]}-\right.$$

$$\left.b\sqrt{1+\mathrm{Cos}[2(e+fx)]}+\sqrt{a-b}\sqrt{2\,b+a\,(1+\mathrm{Cos}[2(e+fx)])-b\,(1+\mathrm{Cos}[2(e+fx)])}\Big]\right)\mathrm{Sin}[2(e+fx)]\Bigg)\Bigg/\Bigg(3\sqrt{a}\sqrt{a-b}$$

$$(1+\mathrm{Cos}[2(e+fx)])\sqrt{-(-1+\mathrm{Cos}[2(e+fx)])(1+\mathrm{Cos}[2(e+fx)])}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+fx)]}\sqrt{1-\mathrm{Cos}[2(e+fx)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\mathrm{Cos}[e+fx])\sqrt{\frac{1+\mathrm{Cos}[2(e+fx)]}{(1+\mathrm{Cos}[e+fx])^2}}\Bigg(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\mathrm{Log}\Big[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+2\,b$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\Big]+$$

$$\mathrm{Log}\Big[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2}\Big]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2(e+f x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

Problem 338: Result more than twice size of optimal antiderivative.

$$\int\frac{\mathrm{Cot}[e+f x]^5}{\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 215 leaves, 10 steps):

$$-\frac{\left(8a^2+12ab+15b^2\right)\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{8a^{7/2}f}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{3/2}f}+$$

$$\frac{b\left(4a^2+3ab-15b^2\right)}{8a^3(a-b)f\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}+\frac{(4a+5b)\,\mathrm{Cot}[e+f x]^2}{8a^2f\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}-\frac{\mathrm{Cot}[e+f x]^4}{4af\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}$$

Result (type 3, 1341 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2(e+f x)]-b\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}$$

$$\left(-\frac{6a^3-5a^2b-8ab^2+15b^3}{8a^3(a-b)^2}+\frac{2b^4}{a^3(a-b)^2\left(a+b+a\,\mathrm{Cos}[2(e+f x)]-b\,\mathrm{Cos}[2(e+f x)]\right)}+\frac{(8a+7b)\,\mathrm{Csc}[e+f x]^2}{8a^3}-\frac{\mathrm{Csc}[e+f x]^4}{4a^2}\right)+$$

$$\frac{1}{4a^3(a-b)f}\left(-\left(\left(\left(6a^3+4a^2b+3ab^2-15b^3\right)(1+\mathrm{Cos}[e+f x])\sqrt{\frac{1+\mathrm{Cos}[2(e+f x)]}{(1+\mathrm{Cos}[e+f x])^2}}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}\left(\mathrm{Log}\left[\right.\right.\right.\right.\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+$$

$$\left.\mathrm{Log}\left[2b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]\right)$$

$$\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\,\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}}\,6\,a^3\sqrt{1+\text{Cos}[2(e+f x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\text{Cos}[e+f x]^2\,(1-\text{Cos}[2(e+f x)])\,\sqrt{2\,b+a\,(1+\text{Cos}[2(e+f x)])-b\,(1+\text{Cos}[2(e+f x)])}\,\text{Cot}[e+f x]$$

$$\left(\sqrt{a-b}\,\text{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\text{Cos}[2(e+f x)]}}{\sqrt{2\,b+a\,(1+\text{Cos}[2(e+f x)])-b\,(1+\text{Cos}[2(e+f x)])}}\right]-\sqrt{a}\,\text{Log}\Big[a\sqrt{1+\text{Cos}[2(e+f x)]}-\right.$$

$$\left.b\sqrt{1+\text{Cos}[2(e+f x)]}+\sqrt{a-b}\,\sqrt{2\,b+a\,(1+\text{Cos}[2(e+f x)])-b\,(1+\text{Cos}[2(e+f x)])}\Big]\right)\text{Sin}[2(e+f x)]\Bigg)\Bigg/\Bigg(3\sqrt{a}\,\sqrt{a-b}$$

$$(1+\text{Cos}[2(e+f x)])\sqrt{-(-1+\text{Cos}[2(e+f x)])\,(1+\text{Cos}[2(e+f x)])}\,\sqrt{a+b+(a-b)\,\text{Cos}[2(e+f x)]}\,\sqrt{1-\text{Cos}[2(e+f x)]^2}\Bigg)\Bigg)+$$

$$\Bigg((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\,\Bigg(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\text{Log}\Big[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2\,b$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\Big]+$$

$$\text{Log}\Big[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\Big]\Bigg)$$

$$\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\Bigg/$$

$$\left(4\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2(e+f x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\,\sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

Problem 339: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\mathrm{Tan}[e+f x]^6}{\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 182 leaves, 8 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}-\frac{(3 a+2 b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[e+f x]}{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}\right]}{2 b^{5/2} f}-\frac{a\,\mathrm{Tan}[e+f x]^3}{(a-b)\, b f\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}+\frac{(3 a-b)\,\mathrm{Tan}[e+f x]\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{2 (a-b)\, b^2 f}$$

Result (type 4, 787 leaves):

$$-\frac{1}{(a-b)\, b^2 f}\Bigg(-\Bigg(b\left(3 a^2-a b-b^2\right)\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f x]^2}{b}}$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}\,\mathrm{Csc}[2(e+f x)]$$

$$\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\,\mathrm{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f x]^4\Bigg)\Bigg/\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2(e+f x)])\right)\Bigg)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}}\,4 b^3\sqrt{1+\mathrm{Cos}[2(e+f x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2(e+f x)]}{1+\mathrm{Cos}[2(e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{a^2\,\text{Sin}[2\,(e+f\,x)]}{(a-b)\,b^2\,(-a-b-a\,\text{Cos}[2\,(e+f\,x)]+b\,\text{Cos}[2\,(e+f\,x)])}+\frac{\text{Tan}[e+f\,x]}{2\,b^2}\right)}{f}$$

- **Problem 340: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 123 leaves, 7 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{b^{3/2}\,f}-\frac{a\,\text{Tan}[e+f\,x]}{(a-b)\,b\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 757 leaves):

$$\frac{1}{(a-b)\,b\,f}\left(-\left((2a-b)\,b\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/\ (a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]))\,-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b^2\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right) - \frac{a\,\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\text{Sin}[2\,(e+f\,x)]}{(a-b)\,b\,f\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}$$

Problem 341: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^2}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 81 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}+\frac{\text{Tan}[e+f\,x]}{(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 741 leaves):

$$-\frac{1}{(a-b)\,f}\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\;\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-$$

$$\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\;\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\;\text{EllipticPi}\left[-\frac{b}{a-b},\,\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]\,\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left.\left.\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\;\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\;\text{Sin}[2\,(e+f\,x)]}{(a-b)\,f\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}$$

- **Problem 342: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int\frac{1}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 85 leaves, 4 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}-\frac{b\,\text{Tan}[e+f\,x]}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 189 leaves):

$$-\frac{1}{2\,f}\left(\frac{i\left(\text{Log}\left[-\frac{4\,i\,\sqrt{a-b}\,\left(a-i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{i+\text{Tan}[e+f\,x]}\right]-\text{Log}\left[\frac{4\,i\,\sqrt{a-b}\,\left(a+i\,b\,\text{Tan}[e+f\,x]+\sqrt{a-b}\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}\right)}{-i+\text{Tan}[e+f\,x]}\right]\right)}{(a-b)^{3/2}}+\frac{2\,b\,\text{Tan}[e+f\,x]}{a\,(a-b)\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right)$$

Problem 343: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[e+f x]^2}{\left(a+b \text{Tan}[e+f x]^2\right)^{3/2}} \, dx$$

Optimal (type 3, 128 leaves, 6 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b} \text{Tan}[e+f x]}{\sqrt{a+b \text{Tan}[e+f x]^2}}\right]}{(a-b)^{3/2} f}-\frac{b \text{Cot}[e+f x]}{a (a-b) f \sqrt{a+b \text{Tan}[e+f x]^2}}-\frac{(a-2 b) \text{Cot}[e+f x] \sqrt{a+b \text{Tan}[e+f x]^2}}{a^2 (a-b) f}$$

Result (type 4, 760 leaves):

$$-\frac{1}{(a-b) f}\left(-\left(b \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}}\right.\right.$$
$$\sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \text{Csc}[2 (e+f x)]$$
$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/ (a (a+b+(a-b) \text{Cos}[2 (e+f x)]))-$$
$$\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}} 4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$
$$\left(\left(\sqrt{-\frac{a \text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}\right.\right.$$
$$\left.\text{Csc}[2 (e+f x)] \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]\;\text{EllipticPi}\Big[-\frac{b}{a-b},\,\text{ArcSin}\Big[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\Big],$$

$$1\Big]\,\text{Sin}[e+f\,x]^4\Bigg)\Bigg/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{\text{Cot}[e+f\,x]}{a^2}+\frac{b^2\,\text{Sin}[2\,(e+f\,x)]}{a^2\,(a-b)\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)}{f}$$

- **Problem 344: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 184 leaves, 7 steps):

$$\frac{\text{ArcTan}\Big[\frac{\sqrt{a-b}\;\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\Big]}{(a-b)^{3/2}\,f}-\frac{b\,\text{Cot}[e+f\,x]^3}{a\,(a-b)\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}+$$

$$\frac{(3\,a-4\,b)\,(a+2\,b)\,\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^3\,(a-b)\,f}-\frac{(a-4\,b)\,\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^2\,(a-b)\,f}$$

Result (type 4, 802 leaves):

$$\frac{1}{(a-b)\,f}\Bigg(-\Bigg(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\,(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\frac{(4\,a\,\mathrm{Cos}[e+f\,x]+5\,b\,\mathrm{Cos}[e+f\,x])\,\mathrm{Csc}[e+f\,x]}{3\,a^3}-\frac{\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^2}{3\,a^2}-\frac{b^3\,\mathrm{Sin}[2\,(e+f\,x)]}{a^3\,(a-b)\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 345: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[e+f\,x]^6}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 252 leaves, 8 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{(a-b)^{3/2}\,f}-\frac{b\,\mathrm{Cot}[e+f\,x]^5}{a\,(a-b)\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}-\frac{\left(15\,a^3+10\,a^2\,b+8\,a\,b^2-48\,b^3\right)\,\mathrm{Cot}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{15\,a^4\,(a-b)\,f}+$$

$$\frac{\left(5\,a^2+4\,a\,b-24\,b^2\right)\,\mathrm{Cot}[e+f\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{15\,a^3\,(a-b)\,f}-\frac{(a-6\,b)\,\mathrm{Cot}[e+f\,x]^5\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{5\,a^2\,(a-b)\,f}$$

Result (type 4, 850 leaves):

$$-\frac{1}{(a-b)\,f}\left(\left(-b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+\frac{1}{f}$$

$$\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(\frac{\left(-23\,a^2\,\text{Cos}[e+f\,x]-34\,a\,b\,\text{Cos}[e+f\,x]-33\,b^2\,\text{Cos}[e+f\,x]\right)\text{Csc}[e+f\,x]}{15\,a^4}+\right.$$

$$\frac{(11\,a\,\text{Cos}[e+f\,x]+9\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]^3}{15\,a^3}-$$

$$\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^4}{5\,a^2}+$$

$$\left.\frac{b^4\,\text{Sin}[2\,(e+f\,x)]}{a^4\,(a-b)\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 346: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f\,x]^5}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 115 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}+\frac{a^2}{3\,(a-b)\,b^2\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{a\,(a-2\,b)}{(a-b)^2\,b^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 497 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{2\,a\,(a-3\,b)}{3\,(a-b)^3\,b^2}+\frac{4\,a^2}{3\,(a-b)^3\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\frac{2\,a\,(a-6\,b)}{3\,(a-b)^3\,b\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)-$$

$$\left((1+\text{Cos}[e+f\,x])\sqrt{\frac{1+\text{Cos}[2\,(e+f\,x)]}{(1+\text{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\text{Log}\left[1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\text{Log}\left[a-b-a\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{5/2}\,f\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

■ Problem 347: Result more than twice size of optimal antiderivative.

$$\int\frac{\text{Tan}[e+f\,x]^3}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 103 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}-\frac{a}{3\,(a-b)\,b\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{1}{(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 3, 492 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\frac{a+3\,b}{3\,(a-b)^3\,b}-\frac{4\,a\,b}{3\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}+\frac{2\,(2\,a+3\,b)}{3\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)+$$

$$\left((1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$\left.\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{5/2}\,f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 348: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[e+f\,x]}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 99 leaves, 6 steps) :

$$-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}+\frac{1}{3\,(a-b)\,f\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{1}{(a-b)^2\,f\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 3, 480 leaves) :

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\frac{4}{3\,(a-b)^3}+\frac{4\,b^2}{3\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}-\frac{10\,b}{3\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)-$$

$$\left((1+\mathrm{Cos}[e+f\,x])\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\mathrm{Log}\left[1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\mathrm{Log}\left[a-b-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a-b}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right]\right)\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left((a-b)^{5/2}\,f\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)$$

- **Problem 349: Result more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Cot}[e+f\,x]}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 147 leaves, 9 steps):

$$-\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a}}\right]}{a^{5/2}\,f}+\frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}\,f}-\frac{b}{3\,a\,(a-b)\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(2\,a-b)\,b}{a^2\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 3, 1333 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(-\frac{(7\,a-3\,b)\,b}{3\,a^2\,(a-b)^3}-\frac{4\,b^3}{3\,a\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}+\frac{2\,(8\,a-3\,b)\,b^2}{3\,a^2\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)+$$

$$\frac{1}{2\,a^2\,(a-b)^2\,f}\left(-\left(\left(\left(3\,a^2-8\,a\,b+4\,b^2\right)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\left(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.\right.\right.$$

$$\mathrm{Log}\left[a-a\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+2\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]+$$

$$\left.\mathrm{Log}\left[2\,b+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\sqrt{\frac{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}}\,\right)\Big/$$

$$\left.\left.\left(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\,\sqrt{4\,b\,\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2+a\left(-1+\mathrm{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)^2}\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,3\,a^2\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\left(-\left(\left(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\mathrm{Cot}[e+f\,x]\right.\right.\right.$$

$$\left(\sqrt{a-b}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}}\right]-\sqrt{a}\,\mathrm{Log}\left[a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}-\right.\right.$$

$$\left.\left.\left.b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}+\sqrt{a-b}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\right]\right)\,\mathrm{Sin}[2\,(e+f\,x)]\right)\Big/\left(3\,\sqrt{a}\,\sqrt{a-b}\right.$$

$$\left.\left.(1+\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\right)\right)+$$

$$\left((1+\mathrm{Cos}[e+f x]) \sqrt{\frac{1+\mathrm{Cos}[2 (e+f x)]}{(1+\mathrm{Cos}[e+f x])^2}} \left(\mathrm{Log}\left[\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right] - \mathrm{Log}\left[a - a\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + 2 b\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + \sqrt{a} \sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + a \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right] + \mathrm{Log}\left[2 b + a \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) + \sqrt{a} \sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + a \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right) \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \left(1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + a \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right) \Bigg/ \left(4 \sqrt{a} \sqrt{1+\mathrm{Cos}[2 (e+f x)]} \sqrt{\left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2} \sqrt{4 b\,\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2 + a \left(-1+\mathrm{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 350: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[e+f x]^3}{\left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 206 leaves, 10 steps):

$$\frac{(2 a+5 b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{2 a^{7/2} f} - \frac{\mathrm{ArcTanh}\left[\frac{\sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2} f} - \frac{(3 a-5 b) b}{6 a^2 (a-b) f \left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2}} - \frac{\mathrm{Cot}[e+f x]^2}{2 a f \left(a+b\,\mathrm{Tan}[e+f x]^2\right)^{3/2}} - \frac{b \left(a^2-8 a b+5 b^2\right)}{2 a^3 (a-b)^2 f \sqrt{a+b\,\mathrm{Tan}[e+f x]^2}}$$

Result (type 3, 1371 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2 (e+f x)]-b\,\mathrm{Cos}[2 (e+f x)]}{1+\mathrm{Cos}[2 (e+f x)]}} \left(\frac{3 a^3-9 a^2 b+29 a b^2-15 b^3}{6 a^3 (a-b)^3} + \frac{4 b^4}{3 a^2 (a-b)^3 (a+b+a\,\mathrm{Cos}[2 (e+f x)]-b\,\mathrm{Cos}[2 (e+f x)])^2} - \frac{2 (11 a-6 b) b^3}{3 a^3 (a-b)^3 (a+b+a\,\mathrm{Cos}[2 (e+f x)]-b\,\mathrm{Cos}[2 (e+f x)])} - \frac{\mathrm{Csc}[e+f x]^2}{2 a^3}\right) - \frac{1}{2 a^3 (a-b)^2 f}$$

$$\left(-\left(\left(\left(3 a^3+2 a^2 b-16 a b^2+10 b^3\right) (1+\text{Cos}[e+f x]) \sqrt{\frac{1+\text{Cos}[2 (e+f x)]}{(1+\text{Cos}[e+f x])^2}} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \left(\text{Log}\left[\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right]-\right.\right.\right.\right.$$

$$\text{Log}\left[a-a \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+2 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]+$$

$$\left.\text{Log}\left[2 b+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)+\sqrt{a} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right) \sqrt{\frac{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}}\right)\Big/$$

$$\left.\left.\left(4 \sqrt{a} \sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]} \sqrt{\left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2} \sqrt{4 b \text{Tan}\left[\frac{1}{2} (e+f x)\right]^2+a \left(-1+\text{Tan}\left[\frac{1}{2} (e+f x)\right]^2\right)^2}\right)\right)\right)+$$

$$\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}} 3 a^3 \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(-\left(\left(4 \text{Cos}[e+f x]^2 (1-\text{Cos}[2 (e+f x)]) \sqrt{2 b+a (1+\text{Cos}[2 (e+f x)])-b (1+\text{Cos}[2 (e+f x)])} \text{Cot}[e+f x]\right.\right.\right.$$

$$\left(\sqrt{a-b} \text{ArcTanh}\left[\frac{\sqrt{a} \sqrt{1+\text{Cos}[2 (e+f x)]}}{\sqrt{2 b+a (1+\text{Cos}[2 (e+f x)])-b (1+\text{Cos}[2 (e+f x)])}}\right]-\sqrt{a} \text{Log}\left[a \sqrt{1+\text{Cos}[2 (e+f x)]}-\right.\right.$$

$$\left.\left.\left.b \sqrt{1+\text{Cos}[2 (e+f x)]}+\sqrt{a-b} \sqrt{2 b+a (1+\text{Cos}[2 (e+f x)])-b (1+\text{Cos}[2 (e+f x)])}\right]\right) \text{Sin}[2 (e+f x)]\right)\Big/\left(3 \sqrt{a} \sqrt{a-b}\right.$$

$$\left.\left.(1+\text{Cos}[2 (e+f x)]) \sqrt{-(-1+\text{Cos}[2 (e+f x)]) (1+\text{Cos}[2 (e+f x)])} \sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]} \sqrt{1-\text{Cos}[2 (e+f x)]^2}\right)\right)+$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+2b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+\sqrt{a}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]+\text{Log}\left[2b+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+\sqrt{a}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right]\right)\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\sqrt{\frac{4b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}}\right)\Bigg/\left(4\sqrt{a}\sqrt{1+\text{Cos}[2(e+f x)]}\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\sqrt{4b\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2}\right)\Bigg)\Bigg)$$

- **Problem 351: Result more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f x]^5}{\left(a+b\,\text{Tan}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 272 leaves, 11 steps):

$$-\frac{\left(8a^2+20ab+35b^2\right)\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a}}\right]}{8a^{9/2}f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[e+f x]^2}}{\sqrt{a-b}}\right]}{(a-b)^{5/2}f}+\frac{b\left(12a^2+15ab-35b^2\right)}{24a^3(a-b)f\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}+\frac{(4a+7b)\,\text{Cot}[e+f x]^2}{8a^2f\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{\text{Cot}[e+f x]^4}{4af\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}+\frac{b\left(4a^3+3a^2b-50ab^2+35b^3\right)}{8a^4(a-b)^2f\sqrt{a+b\,\text{Tan}[e+f x]^2}}$$

Result (type 3, 1409 leaves):

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]}{1+\text{Cos}[2(e+f x)]}}\left(-\frac{18a^4-21a^3b-45a^2b^2+185ab^3-105b^4}{24a^4(a-b)^3}-\frac{4b^5}{3a^3(a-b)^3\left(a+b+a\,\text{Cos}[2(e+f x)]-b\,\text{Cos}[2(e+f x)]\right)^2}+\right.$$

$$\frac{2\,(14\,a-9\,b)\,b^4}{3\,a^4\,(a-b)^3\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}+\frac{(8\,a+11\,b)\,\mathrm{Csc}[e+f\,x]^2}{8\,a^4}-\frac{\mathrm{Csc}[e+f\,x]^4}{4\,a^3}\Bigg)+\frac{1}{4\,a^4\,(a-b)^2\,f}$$

$$\Bigg(-\Bigg(\Bigg(\Big(6\,a^4+4\,a^3\,b+3\,a^2\,b^2-50\,a\,b^3+35\,b^4\Big)\,(1+\mathrm{Cos}[e+f\,x])\,\sqrt{\frac{1+\mathrm{Cos}[2\,(e+f\,x)]}{(1+\mathrm{Cos}[e+f\,x])^2}}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\Bigg(\mathrm{Log}\Big[\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big]-$$

$$\mathrm{Log}\Big[a-a\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+2\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]+$$

$$\mathrm{Log}\Big[2\,b+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)+\sqrt{a}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Big]\Bigg)$$

$$\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\Big(1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)\,\sqrt{\frac{4\,b\,\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2+a\,\Big(-1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\Big)^2}{\Big(1+\mathrm{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^2\Big)^2}}\Bigg)\Bigg/$$

$$\Bigg(4\,\sqrt{a}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\sqrt{4\,b\,\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2+a\,\Big(-1+\mathrm{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^2\Big)^2}\,\Bigg)\Bigg)+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}}\,6\,a^4\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(-\Bigg(\Bigg(4\,\mathrm{Cos}[e+f\,x]^2\,(1-\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\mathrm{Cot}[e+f\,x]$$

$$\Bigg(\sqrt{a-b}\,\mathrm{ArcTanh}\Big[\frac{\sqrt{a}\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}}{\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}}\Big]-\sqrt{a}\,\mathrm{Log}\Big[a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,-$$

$$b\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,+\sqrt{a-b}\,\sqrt{2\,b+a\,(1+\mathrm{Cos}[2\,(e+f\,x)])-b\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\Big]\Bigg)\,\mathrm{Sin}[2\,(e+f\,x)]\Bigg)\Bigg/\Bigg(3\,\sqrt{a}\,\sqrt{a-b}$$

$$(1+\mathrm{Cos}[2\,(e+f\,x)])\,\sqrt{-(-1+\mathrm{Cos}[2\,(e+f\,x)])\,(1+\mathrm{Cos}[2\,(e+f\,x)])}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{1-\mathrm{Cos}[2\,(e+f\,x)]^2}\,\Bigg)\Bigg)+$$

$$\left((1+\text{Cos}[e+f x])\sqrt{\frac{1+\text{Cos}[2\,(e+f x)]}{(1+\text{Cos}[e+f x])^2}}\left(\text{Log}\left[\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right]-\text{Log}\left[a-a\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+2\,b\right.\right.\right.$$

$$\left.\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\right]+$$

$$\left.\text{Log}\left[2\,b+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)+\sqrt{a}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\right]\right)$$

$$\left.\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)\sqrt{\frac{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}{\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}}\right)\Bigg/$$

$$\left.\left.\left(4\,\sqrt{a}\,\sqrt{1+\text{Cos}[2\,(e+f x)]}\,\sqrt{\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\,\sqrt{4\,b\,\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2+a\left(-1+\text{Tan}\left[\frac{1}{2}\,(e+f x)\right]^2\right)^2}\right)\right)\right)$$

- **Problem 352: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[e+f x]^6}{\left(a+b\,\text{Tan}[e+f x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 171 leaves, 8 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{5/2}\,f}+\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{b^{5/2}\,f}-\frac{a\,\text{Tan}[e+f x]^3}{3\,(a-b)\,b\,f\left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{a\,(a-2\,b)\,\text{Tan}[e+f x]}{(a-b)^2\,b^2\,f\,\sqrt{a+b\,\text{Tan}[e+f x]^2}}$$

Result (type 4, 835 leaves):

$$\frac{1}{(a-b)^2\,b^2\,f}\left(\left(-\left(b\left(2\,a^2-4\,a\,b+b^2\right)\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f x)]}{1+\text{Cos}[2\,(e+f x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}}\right.\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f x)])\,\text{Csc}[e+f x]^2}{b}}\,\text{Csc}[2\,(e+f x)]$$

$$\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Big/\;(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))\;+$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b^3\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\Bigg(\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\Bigg)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\Bigg(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\;\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\text{Sin}[e+f\,x]^4\Bigg)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)\;+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{2\,a^2\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,b\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\right.$$

$$\left.\frac{-3\,a^2\,\text{Sin}[2\,(e+f\,x)]+7\,a\,b\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,b^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 353: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Tan}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 131 leaves, 6 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{a\,\text{Tan}[e+f\,x]}{3\,(a-b)\,b\,f\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{(a-4\,b)\,\text{Tan}[e+f\,x]}{3\,(a-b)^2\,b\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}$$

Result (type 4, 791 leaves):

$$\frac{1}{(a-b)^2\,f}\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\,\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\,1\right]$$

$$\left.\mathrm{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\mathrm{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}\right)\Bigg)\Bigg)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\left(\frac{2\,a\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])^2}-\right.$$

$$\left.\frac{4\,\mathrm{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\mathrm{Cos}[2\,(e+f\,x)]-b\,\mathrm{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 354: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\mathrm{Tan}[e+f\,x]^2}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 128 leaves, 6 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\,\mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}+\frac{\mathrm{Tan}[e+f\,x]}{3\,(a-b)\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}+\frac{(2\,a+b)\,\mathrm{Tan}[e+f\,x]}{3\,a\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 4, 809 leaves):

$$-\frac{1}{(a-b)^2\,f}\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)])\,\mathrm{Csc}[e+f\,x]^2}{b}}\;\mathrm{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\bigg/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\,\text{Sin}[e+f\,x]^4\right)\bigg/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\,\text{Sin}[e+f\,x]^4\right)\bigg/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\left(-\frac{2\,b\,\text{Sin}[2\,(e+f\,x)]}{3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\right.$$

$$\left.\frac{3\,a\,\text{Sin}[2\,(e+f\,x)]+b\,\text{Sin}[2\,(e+f\,x)]}{3\,a\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

Problem 355: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 134 leaves, 6 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\ \mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\mathrm{Tan}[e+f\,x]}{3\,a\,(a-b)\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(5\,a-2\,b)\,b\,\mathrm{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}$$

Result (type 3, 381 leaves):

$$\frac{i\,\mathrm{Log}\left[\frac{4\left(i\,a^3-2\,i\,a^2\,b+i\,a\,b^2-a^2\,b\,\mathrm{Tan}[e+f\,x]+2\,a\,b^2\,\mathrm{Tan}[e+f\,x]-b^3\,\mathrm{Tan}[e+f\,x]\right)}{\sqrt{a-b}\,(-i+\mathrm{Tan}[e+f\,x])}+\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{-i+\mathrm{Tan}[e+f\,x]}\right]}{2\,(a-b)^{5/2}\,f}-$$

$$\frac{i\,\mathrm{Log}\left[\frac{4\left(-i\,a^3+2\,i\,a^2\,b-i\,a\,b^2-a^2\,b\,\mathrm{Tan}[e+f\,x]+2\,a\,b^2\,\mathrm{Tan}[e+f\,x]-b^3\,\mathrm{Tan}[e+f\,x]\right)}{\sqrt{a-b}\,(i+\mathrm{Tan}[e+f\,x])}-\frac{4\,i\,(a-b)^2\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{i+\mathrm{Tan}[e+f\,x]}\right]}{2\,(a-b)^{5/2}\,f}+$$

$$\frac{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}\,\left(-\frac{b\,\mathrm{Tan}[e+f\,x]}{3\,a\,(a-b)\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^2}-\frac{(5\,a-2\,b)\,b\,\mathrm{Tan}[e+f\,x]}{3\,a^2\,(a-b)^2\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)}\right)}{f}$$

- **Problem 356: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Cot}[e+f\,x]^2}{\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 186 leaves, 7 steps):

$$-\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a-b}\ \mathrm{Tan}[e+f\,x]}{\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\mathrm{Cot}[e+f\,x]}{3\,a\,(a-b)\,f\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{3/2}}-$$

$$\frac{(7\,a-4\,b)\,b\,\mathrm{Cot}[e+f\,x]}{3\,a^2\,(a-b)^2\,f\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}-\frac{(a-4\,b)\,(3\,a-2\,b)\,\mathrm{Cot}[e+f\,x]\,\sqrt{a+b\,\mathrm{Tan}[e+f\,x]^2}}{3\,a^3\,(a-b)^2\,f}$$

Result (type 4, 831 leaves):

$$-\frac{1}{(a-b)^2\,f}\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\mathrm{Cos}[2\,(e+f\,x)]}{1+\mathrm{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}}\right.\right.$$

$$\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]$$

$$\left.\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\right)-$$

$$\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.\left.1\right]\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+\frac{1}{f}$$

$$\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(-\frac{\text{Cot}[e+f\,x]}{a^3}-\frac{2\,b^3\,\text{Sin}[2\,(e+f\,x)]}{3\,a^2\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}+\frac{9\,a\,b^2\,\text{Sin}[2\,(e+f\,x)]-5\,b^3\,\text{Sin}[2\,(e+f\,x)]}{3\,a^3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 357: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^4}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 249 leaves, 8 steps):

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\,\text{Tan}[e+f\,x]}{\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}\right]}{(a-b)^{5/2}\,f}-\frac{b\,\text{Cot}[e+f\,x]^3}{3\,a\,(a-b)\,f\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{3/2}}-\frac{(3\,a-2\,b)\,b\,\text{Cot}[e+f\,x]^3}{a^2\,(a-b)^2\,f\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}+\frac{(a-2\,b)\left(3\,a^2+8\,a\,b-8\,b^2\right)\text{Cot}[e+f\,x]\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^4\,(a-b)^2\,f}-\frac{\left(a^2-12\,a\,b+8\,b^2\right)\text{Cot}[e+f\,x]^3\,\sqrt{a+b\,\text{Tan}[e+f\,x]^2}}{3\,a^3\,(a-b)^2\,f}$$

Result (type 4, 871 leaves):

$$\frac{1}{(a-b)^2\,f}\left(-\left(b\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\,\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/(a\,(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]))-\frac{1}{\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}}\,4\,b\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{\frac{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\right.$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.\right.$$

$$\left.\text{Csc}[2\,(e+f\,x)]\,\text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]\text{Sin}[e+f\,x]^4\right)\Big/$$

$$\left(4\,a\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)-\left(\sqrt{-\frac{a\,\text{Cot}[e+f\,x]^2}{b}}\,\sqrt{-\frac{a\,(1+\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}\,\text{Csc}[2\,(e+f\,x)]\,\text{EllipticPi}\left[-\frac{b}{a-b},\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)])\,\text{Csc}[e+f\,x]^2}{b}}}{\sqrt{2}}\right],1\right]$$

$$\left.\left.\left.\text{Sin}[e+f\,x]^4\right)\Big/\left(2\,(a-b)\,\sqrt{1+\text{Cos}[2\,(e+f\,x)]}\,\sqrt{a+b+(a-b)\,\text{Cos}[2\,(e+f\,x)]}\right)\right)\right)+$$

$$\frac{1}{f}\sqrt{\frac{a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)]}{1+\text{Cos}[2\,(e+f\,x)]}}\left(\frac{4\,(a\,\text{Cos}[e+f\,x]+2\,b\,\text{Cos}[e+f\,x])\,\text{Csc}[e+f\,x]}{3\,a^4}-\right.$$

$$\frac{\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2}{3\,a^3}+$$

$$\frac{2\,b^4\,\text{Sin}[2\,(e+f\,x)]}{3\,a^3\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])^2}-$$

$$\left.\frac{4\,\left(3\,a\,b^3\,\text{Sin}[2\,(e+f\,x)]-2\,b^4\,\text{Sin}[2\,(e+f\,x)]\right)}{3\,a^4\,(a-b)^2\,(a+b+a\,\text{Cos}[2\,(e+f\,x)]-b\,\text{Cos}[2\,(e+f\,x)])}\right)$$

- **Problem 358: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[e+f\,x]^6}{\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{5/2}}\,dx$$

Optimal (type 3, 327 leaves, 9 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b}\ \text{Tan}[e+f x]}{\sqrt{a+b\,\text{Tan}[e+f x]^2}}\right]}{(a-b)^{5/2} f}-\frac{b\,\text{Cot}[e+f x]^5}{3 a (a-b) f \left(a+b\,\text{Tan}[e+f x]^2\right)^{3/2}}-\frac{(11 a-8 b)\, b\,\text{Cot}[e+f x]^5}{3 a^2 (a-b)^2 f \sqrt{a+b\,\text{Tan}[e+f x]^2}}-\frac{\left(15 a^4+10 a^3 b+8 a^2 b^2-176 a b^3+128 b^4\right) \text{Cot}[e+f x] \sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^5 (a-b)^2 f}+\frac{\left(5 a^3+4 a^2 b-88 a b^2+64 b^3\right) \text{Cot}[e+f x]^3 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{15 a^4 (a-b)^2 f}-\frac{\left(a^2-22 a b+16 b^2\right) \text{Cot}[e+f x]^5 \sqrt{a+b\,\text{Tan}[e+f x]^2}}{5 a^3 (a-b)^2 f}$$

Result (type 4, 921 leaves) :

$$-\frac{1}{(a-b)^2 f}\left(\left(-b \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}} \sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}\ \text{Csc}[2 (e+f x)]\ \text{EllipticF}\left[\text{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}}{\sqrt{2}}\right], 1\right] \text{Sin}[e+f x]^4\right) \Big/ (a (a+b+(a-b) \text{Cos}[2 (e+f x)]))-\right.$$

$$\frac{1}{\sqrt{a+b+(a-b) \text{Cos}[2 (e+f x)]}}\, 4 b \sqrt{1+\text{Cos}[2 (e+f x)]} \sqrt{\frac{a+b+(a-b) \text{Cos}[2 (e+f x)]}{1+\text{Cos}[2 (e+f x)]}}$$

$$\left(\left(\sqrt{-\frac{a\,\text{Cot}[e+f x]^2}{b}} \sqrt{-\frac{a (1+\text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}} \sqrt{\frac{(a+b+(a-b) \text{Cos}[2 (e+f x)]) \text{Csc}[e+f x]^2}{b}}\right.\right.$$

$$\mathrm{Csc}[2(e+fx)]\,\mathrm{EllipticF}\left[\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\mathrm{Cos}[2(e+fx)])\mathrm{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],1\right]\mathrm{Sin}[e+fx]^4\Bigg)\Bigg/$$

$$\left(4a\sqrt{1+\mathrm{Cos}[2(e+fx)]}\sqrt{a+b+(a-b)\mathrm{Cos}[2(e+fx)]}\right)-\left(\sqrt{-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}}\sqrt{-\frac{a(1+\mathrm{Cos}[2(e+fx)])\mathrm{Csc}[e+fx]^2}{b}}\right.$$

$$\sqrt{\frac{(a+b+(a-b)\mathrm{Cos}[2(e+fx)])\mathrm{Csc}[e+fx]^2}{b}}\;\mathrm{Csc}[2(e+fx)]\,\mathrm{EllipticPi}\left[-\frac{b}{a-b},\mathrm{ArcSin}\left[\frac{\sqrt{\frac{(a+b+(a-b)\mathrm{Cos}[2(e+fx)])\mathrm{Csc}[e+fx]^2}{b}}}{\sqrt{2}}\right],\right.$$

$$\left.\left.1\right]\mathrm{Sin}[e+fx]^4\right)\Bigg/\left(2(a-b)\sqrt{1+\mathrm{Cos}[2(e+fx)]}\sqrt{a+b+(a-b)\mathrm{Cos}[2(e+fx)]}\right)\Bigg)\Bigg)+\frac{1}{f}$$

$$\sqrt{\frac{a+b+a\,\mathrm{Cos}[2(e+fx)]-b\,\mathrm{Cos}[2(e+fx)]}{1+\mathrm{Cos}[2(e+fx)]}}\left(\frac{\left(-23a^2\mathrm{Cos}[e+fx]-54ab\,\mathrm{Cos}[e+fx]-73b^2\mathrm{Cos}[e+fx]\right)\mathrm{Csc}[e+fx]}{15a^5}+\right.$$

$$\frac{(11a\,\mathrm{Cos}[e+fx]+14b\,\mathrm{Cos}[e+fx])\mathrm{Csc}[e+fx]^3}{15a^4}-$$

$$\frac{\mathrm{Cot}[e+fx]\,\mathrm{Csc}[e+fx]^4}{5a^3}-$$

$$\frac{2b^5\,\mathrm{Sin}[2(e+fx)]}{3a^4(a-b)^2(a+b+a\,\mathrm{Cos}[2(e+fx)]-b\,\mathrm{Cos}[2(e+fx)])^2}+$$

$$\left.\frac{15ab^4\,\mathrm{Sin}[2(e+fx)]-11b^5\,\mathrm{Sin}[2(e+fx)]}{3a^5(a-b)^2(a+b+a\,\mathrm{Cos}[2(e+fx)]-b\,\mathrm{Cos}[2(e+fx)])}\right)$$

- **Problem 360: Result more than twice size of optimal antiderivative.**

$$\int(d\,\mathrm{Tan}[e+fx])^m\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 100 leaves, 3 steps):

$$\frac{1}{d\,f\,(1+m)}\mathrm{AppellF1}\left[\frac{1+m}{2},1,-p,\frac{3+m}{2},-\mathrm{Tan}[e+fx]^2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right](d\,\mathrm{Tan}[e+fx])^{1+m}\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\left(1+\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right)^{-p}$$

Result (type 6, 247 leaves) :

$$\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-p,1,\frac{3+m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[2\,(e+f\,x)]\,(d\,\text{Tan}[e+f\,x])^m\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$
$$\left(2\,f\,(1+m)\,\left(a\,(3+m)\,\text{AppellF1}\left[\frac{1+m}{2},-p,1,\frac{3+m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$
$$2\,\left(b\,p\,\text{AppellF1}\left[\frac{3+m}{2},1-p,1,\frac{5+m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.$$
$$\left.\left.\left.a\,\text{AppellF1}\left[\frac{3+m}{2},-p,2,\frac{5+m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)$$

Problem 364: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cot}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 118 leaves, 5 steps) :

$$\frac{\text{Hypergeometric2F1}\left[1,1+p,2+p,\frac{a+b\,\text{Tan}[e+f\,x]^2}{a-b}\right]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{1+p}}{2\,(a-b)\,f\,(1+p)}-$$
$$\frac{\text{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{1+p}}{2\,a\,f\,(1+p)}$$

Result (type 6, 1625 leaves) :

$$\left(\text{Cot}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}\,\left(\frac{\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]}{p}+\right.\right.$$
$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right)\Big/$$
$$\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$
$$\left.\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)\right)\Big/$$
$$\left(2\,f\,\left(b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\,\left(\frac{\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]}{p}+\right.\right.\right.$$
$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right)\Big/$$

$$\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$

$$\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\frac{1}{2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(\frac{1}{b}2\,a\,\text{Cot}[e+f\,x]\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-1-p}\text{Csc}[e+f\,x]^2\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]+\right.$$

$$2\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\text{Csc}[e+f\,x]\left(\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\text{Sec}[e+f\,x]+\right.$$

$$\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(2\,a\,\text{Sin}[e+f\,x]^2\left(\frac{b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{a}-\text{AppellF1}\left[2,-p,2,3,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)$$

$$\left.\text{Tan}[e+f\,x]^2\right)-\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right.$$

$$\left(2\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-2\,a\left(\frac{b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{a}-\right.$$

$$\left.\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$\mathrm{Tan}[e+fx]^2\left(-b\,p\left(-\frac{4}{3}\mathrm{AppellF1}\left[3,1-p,2,4,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]-\frac{1}{3a}4b(1-p)\,\mathrm{AppellF1}\left[3,2-p,1,4,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]\right)+a\left(\frac{1}{3a}4b\,p\,\mathrm{AppellF1}\left[3,1-p,2,4,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]-\frac{8}{3}\mathrm{AppellF1}\left[3,-p,3,4,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]\right)\right)\right)\Bigg/\left(-2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]+\left(-b\,p\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]+a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\right)\mathrm{Tan}[e+fx]^2\right)^2\Bigg)\Bigg)\Bigg)$$

- **Problem 365: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[e+fx]^3\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 5, 158 leaves, 6 steps):

$$-\frac{\mathrm{Cot}[e+fx]^2\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{2af}-\frac{\mathrm{Hypergeometric2F1}\left[1,1+p,2+p,\frac{a+b\,\mathrm{Tan}[e+fx]^2}{a-b}\right]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{2(a-b)f(1+p)}+\frac{(a-b\,p)\,\mathrm{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{2a^2f(1+p)}$$

Result (type 6, 1903 leaves):

$$\left(\mathrm{Cot}[e+fx]^3\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{2p}\left(\frac{1}{(-1+p)\,p}\left(1+\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right)^{-p}\left(p\,\mathrm{Cot}[e+fx]^2\,\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]-(-1+p)\,\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\right)+\left(2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Sin}[e+fx]^2\right)\Bigg/\left(2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]+\left(b\,p\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]-a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\right)\mathrm{Tan}[e+fx]^2\right)\right)\right)\Bigg/$$

$$\Bigg(2\,f\,\Bigg(b\,p\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{-1+p}\left(\frac{1}{(-1+p)\,p}\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^{-p}\left(p\,\mathrm{Cot}[e+f\,x]^2\right.\right.$$

$$\left.\left.\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]-(-1+p)\,\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\right)+$$

$$\left(2\,a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sin}[e+f\,x]^2\right)\Big/$$

$$\left(2\,a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]+\left(b\,p\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]-\right.\right.$$

$$\left.\left.\left.a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right)\mathrm{Tan}[e+f\,x]^2\right)\right)+\frac{1}{2}\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p$$

$$\Bigg(\frac{1}{b\,(-1+p)}2\,a\,\mathrm{Cot}[e+f\,x]\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^{-1-p}\mathrm{Csc}[e+f\,x]^2\left(p\,\mathrm{Cot}[e+f\,x]^2\,\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]-\right.$$

$$\left.(-1+p)\,\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\right)+\frac{1}{(-1+p)\,p}\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^{-p}$$

$$\left(-2\,(1-p)\,p\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^2\left(\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^p-\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\right)-\right.$$

$$2\,p\,\mathrm{Cot}[e+f\,x]\,\mathrm{Csc}[e+f\,x]^2\,\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]-$$

$$\left.2\,(-1+p)\,p\,\mathrm{Csc}[e+f\,x]\left(\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^p-\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\right)\mathrm{Sec}[e+f\,x]\right)+$$

$$\left(4\,a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Cos}[e+f\,x]\,\mathrm{Sin}[e+f\,x]\right)\Big/$$

$$\left(2\,a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]+\left(b\,p\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]-\right.\right.$$

$$\left.\left.a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\right)\mathrm{Tan}[e+f\,x]^2\right)+$$

$$\left(2\,a\,\mathrm{Sin}[e+f\,x]^2\left(\frac{b\,p\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{a}-\mathrm{AppellF1}\left[2,-p,2,3,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\Big/\left(2\,a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},-\mathrm{Tan}[e+f\,x]^2\right]+\right.$$

$$\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)$$

$$\text{Tan}[e+f\,x]^2\Big)-\Bigg(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2$$

$$\Bigg(2\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+2\,a\left(\frac{b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{a}-\right.$$

$$\left.\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$\text{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{4}{3}\,\text{AppellF1}\left[3,1-p,2,4,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.\right.$$

$$\left.\frac{1}{3\,a}4\,b\,(1-p)\,\text{AppellF1}\left[3,2-p,1,4,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$

$$a\left(\frac{1}{3\,a}4\,b\,p\,\text{AppellF1}\left[3,1-p,2,4,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.\left.\left.\left.\frac{8}{3}\,\text{AppellF1}\left[3,-p,3,4,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Bigg/$$

$$\left(2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)^2\Bigg)\Bigg)\Bigg)$$

- **Problem 366: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f\,x]^5\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 5, 217 leaves, 7 steps) :

$$\frac{(2a+b-bp)\,\mathrm{Cot}[e+fx]^2\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{4a^2 f}-\frac{\mathrm{Cot}[e+fx]^4\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{4af}+$$

$$\frac{\mathrm{Hypergeometric2F1}\left[1,1+p,2+p,\frac{a+b\,\mathrm{Tan}[e+fx]^2}{a-b}\right]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{2(a-b)f(1+p)}-$$

$$\frac{\left(2a^2-2abp-b^2(1-p)p\right)\mathrm{Hypergeometric2F1}\left[1,1+p,2+p,1+\frac{b\,\mathrm{Tan}[e+fx]^2}{a}\right]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{1+p}}{4a^3f(1+p)}$$

Result (type 6, 2624 leaves) :

$$\Bigg(\mathrm{Cot}[e+fx]^5\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{2p}\Bigg(\Bigg(2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Tan}[e+fx]^2\Bigg)\Big/$$
$$\Bigg(\left(1+\mathrm{Tan}[e+fx]^2\right)\Bigg(-2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]+\Bigg(-bp\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},\right.$$
$$\left.-\mathrm{Tan}[e+fx]^2\right]+a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\Bigg)\mathrm{Tan}[e+fx]^2\Bigg)\Bigg)+\frac{1}{(-2+p)(-1+p)p}$$
$$\mathrm{Cot}[e+fx]^4\left(1+\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right)^{-p}\Bigg(-(-2+p)p\,\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Tan}[e+fx]^2+$$
$$(-1+p)\Bigg(p\,\mathrm{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]+$$
$$(-2+p)\,\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Tan}[e+fx]^4\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$
$$\Bigg(2f\Bigg(bp\,\mathrm{Sec}[e+fx]^2\,\mathrm{Tan}[e+fx]\left(a+b\,\mathrm{Tan}[e+fx]^2\right)^{-1+p}\Bigg(\Bigg(2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\mathrm{Tan}[e+fx]^2\Bigg)\Big/$$
$$\Bigg(\left(1+\mathrm{Tan}[e+fx]^2\right)\Bigg(-2a\,\mathrm{AppellF1}\left[1,-p,1,2,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]+\Bigg(-bp\,\mathrm{AppellF1}\left[2,1-p,1,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},\right.$$
$$\left.-\mathrm{Tan}[e+fx]^2\right]+a\,\mathrm{AppellF1}\left[2,-p,2,3,-\frac{b\,\mathrm{Tan}[e+fx]^2}{a},-\mathrm{Tan}[e+fx]^2\right]\Bigg)\mathrm{Tan}[e+fx]^2\Bigg)\Bigg)+\frac{1}{(-2+p)(-1+p)p}$$
$$\mathrm{Cot}[e+fx]^4\left(1+\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right)^{-p}\Bigg(-(-2+p)p\,\mathrm{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Tan}[e+fx]^2+$$
$$(-1+p)\Bigg(p\,\mathrm{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]+$$
$$(-2+p)\,\mathrm{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\mathrm{Cot}[e+fx]^2}{b}\right]\mathrm{Tan}[e+fx]^4\Bigg)\Bigg)\Bigg)+$$

$$\frac{1}{2}\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(-\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3\right)\Big/\right.$$

$$\left(\left(1+\text{Tan}[e+f\,x]^2\right)^2\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,\right.\right.\right.\right.$$

$$\left.\left.\left.\left.-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(4\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\Big/\left(\left(1+\text{Tan}[e+f\,x]^2\right)\right.$$

$$\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$

$$\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+$$

$$\left(2\,a\,\text{Tan}[e+f\,x]^2\left(\frac{b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{a}-\right.\right.$$

$$\left.\left.\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/\left(\left(1+\text{Tan}[e+f\,x]^2\right)\right.$$

$$\left(-2\,a\,\text{AppellF1}\left[1,-p,1,2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\text{AppellF1}\left[2,1-p,1,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$

$$\left.\left.\left.a\,\text{AppellF1}\left[2,-p,2,3,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)+\frac{1}{(-2+p)\,(-1+p)\,p}\text{Cot}[e+f\,x]^4$$

$$\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^{-p}\left(2\,(1-p)\,(-2+p)\,p\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-2\,(-2+p)\,p\,\text{Hypergeometric2F1}\left[1-p,-p,2-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+$$

$$(-1+p)\left(-2\,(2-p)\,p\,\text{Csc}[e+f\,x]\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[2-p,-p,3-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\text{Sec}[e+f\,x]+2\right.$$

$$(-2+p)\,p\left(\left(1+\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right)^p-\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\right)\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3+4$$

$$\left.\left.(-2+p)\,\text{Hypergeometric2F1}\left[-p,-p,1-p,-\frac{a\,\text{Cot}[e+f\,x]^2}{b}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^3\right)\right)+\frac{1}{b\,(-2+p)\,(-1+p)}$$

$$2\,a\,\mathrm{Cot}[e+f\,x]^5\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^{-1-p}\mathrm{Csc}[e+f\,x]^2\left(-(-2+p)\,p\,\mathrm{Hypergeometric2F1}\left[1-p,\,-p,\,2-p,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\right.$$
$$\mathrm{Tan}[e+f\,x]^2+(-1+p)\left(p\,\mathrm{Hypergeometric2F1}\left[2-p,\,-p,\,3-p,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]+\right.$$
$$\left.\left.(-2+p)\,\mathrm{Hypergeometric2F1}\left[-p,\,-p,\,1-p,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\mathrm{Tan}[e+f\,x]^4\right)\right)-\frac{1}{(-2+p)\,(-1+p)\,p}$$
$$4\,\mathrm{Cot}[e+f\,x]^3\left(1+\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right)^{-p}\mathrm{Csc}[e+f\,x]^2\left(-(-2+p)\,p\,\mathrm{Hypergeometric2F1}\left[1-p,\,-p,\,2-p,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\mathrm{Tan}[e+f\,x]^2+\right.$$
$$(-1+p)\left(p\,\mathrm{Hypergeometric2F1}\left[2-p,\,-p,\,3-p,\,-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]+(-2+p)\,\mathrm{Hypergeometric2F1}\left[-p,\,-p,\,1-p,\right.\right.$$
$$\left.\left.\left.-\frac{a\,\mathrm{Cot}[e+f\,x]^2}{b}\right]\mathrm{Tan}[e+f\,x]^4\right)\right)-\left(2\,a\,\mathrm{AppellF1}\left[1,\,-p,\,1,\,2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Tan}[e+f\,x]^2\right.$$
$$\left(2\left(-b\,p\,\mathrm{AppellF1}\left[2,\,1-p,\,1,\,3,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]+a\,\mathrm{AppellF1}\left[2,\,-p,\,2,\,3,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\right)\right.$$
$$\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-2\,a\left(\frac{b\,p\,\mathrm{AppellF1}\left[2,\,1-p,\,1,\,3,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]}{a}-\right.$$
$$\left.\mathrm{AppellF1}\left[2,\,-p,\,2,\,3,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)+$$
$$\mathrm{Tan}[e+f\,x]^2\left(-b\,p\left(-\frac{4}{3}\,\mathrm{AppellF1}\left[3,\,1-p,\,2,\,4,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-\right.\right.$$
$$\left.\frac{1}{3\,a}4\,b\,(1-p)\,\mathrm{AppellF1}\left[3,\,2-p,\,1,\,4,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)+$$
$$a\left(\frac{1}{3\,a}4\,b\,p\,\mathrm{AppellF1}\left[3,\,1-p,\,2,\,4,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]-\right.$$
$$\left.\left.\left.\left.\frac{8}{3}\,\mathrm{AppellF1}\left[3,\,-p,\,3,\,4,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$
$$\left(\left(1+\mathrm{Tan}[e+f\,x]^2\right)\left(-2\,a\,\mathrm{AppellF1}\left[1,\,-p,\,1,\,2,\,-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\,-\mathrm{Tan}[e+f\,x]^2\right]+\left(-b\,p\,\mathrm{AppellF1}\left[2,\,1-p,\,1,\,3,\right.\right.\right.\right.$$

$$-\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]+a\,\mathrm{AppellF1}\Big[2,\ -p,\ 2,\ 3,\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]\Big)\,\mathrm{Tan}[e+f\,x]^2\Big)^2\Big)\Big)\Big)\Big)$$

Problem 367: Unable to integrate problem.

$$\int \mathrm{Tan}[e+f\,x]^6\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{7\,f}\mathrm{AppellF1}\Big[\frac{7}{2},\ 1,\ -p,\ \frac{9}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Tan}[e+f\,x]^7\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \mathrm{Tan}[e+f\,x]^6\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,dx$$

Problem 368: Result more than twice size of optimal antiderivative.

$$\int \mathrm{Tan}[e+f\,x]^4\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{5\,f}\mathrm{AppellF1}\Big[\frac{5}{2},\ 1,\ -p,\ \frac{7}{2},\ -\mathrm{Tan}[e+f\,x]^2,\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Tan}[e+f\,x]^5\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 2250 leaves):

$$\Big(\mathrm{Tan}[e+f\,x]^5\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{2\,p}\,\Big(\Big(9\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\ -p,\ 1,\ \frac{3}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]\,\mathrm{Cos}[e+f\,x]^2\Big)\Big/$$
$$\Big(3\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\ -p,\ 1,\ \frac{3}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]+2\,\Big(b\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\ 1-p,\ 1,\ \frac{5}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]-$$
$$a\,\mathrm{AppellF1}\Big[\frac{3}{2},\ -p,\ 2,\ \frac{5}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]\Big)\,\mathrm{Tan}[e+f\,x]^2\Big)+\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-p}$$
$$\Big(-3\,\mathrm{Hypergeometric2F1}\Big[\frac{1}{2},\ -p,\ \frac{3}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]+\mathrm{Hypergeometric2F1}\Big[\frac{3}{2},\ -p,\ \frac{5}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\Big]\,\mathrm{Tan}[e+f\,x]^2\Big)\Big)\Big)\Big/$$
$$\Big(3\,f\,\Big(\frac{2}{3}\,b\,p\,\mathrm{Sec}[e+f\,x]^2\,\mathrm{Tan}[e+f\,x]^2\,\left(a+b\,\mathrm{Tan}[e+f\,x]^2\right)^{-1+p}\,\Big(\Big(9\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\ -p,\ 1,\ \frac{3}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]\,\mathrm{Cos}[e+f\,x]^2\Big)\Big/$$
$$\Big(3\,a\,\mathrm{AppellF1}\Big[\frac{1}{2},\ -p,\ 1,\ \frac{3}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]+2\,\Big(b\,p\,\mathrm{AppellF1}\Big[\frac{3}{2},\ 1-p,\ 1,\ \frac{5}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]-$$
$$a\,\mathrm{AppellF1}\Big[\frac{3}{2},\ -p,\ 2,\ \frac{5}{2},\ -\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a},\ -\mathrm{Tan}[e+f\,x]^2\Big]\Big)\,\mathrm{Tan}[e+f\,x]^2\Big)+\left(1+\frac{b\,\mathrm{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

$$\left(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\Bigg)+$$

$$\frac{1}{3}\,\text{Sec}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]^2\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\,\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

$$\left(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)\Bigg)+$$

$$\frac{1}{3}\,\text{Tan}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(-\left(18\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\,\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\right.\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(9\,a\,\text{Cos}[e+f\,x]^2\,\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.\right.$$

$$\left.\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\,\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)-$$

$$\frac{1}{a}2\,b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\,\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-1-p}\,\left(-3\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$

$$\left.\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)-$$

$$\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cos}[e+f\,x]^2\right.$$

$$\left(4\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+3\,a\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.$$

$$\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$2\,\text{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{6}{5}\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.\right.$$

$$\left.\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},2-p,1,\frac{7}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$

$$a\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.\left.\left.\left.\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},-p,3,\frac{7}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)^2+$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(2\,\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$3\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]\left(-\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)+$$

$$\left.\left.\left.3\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\left(-\text{Hypergeometric2F1}\left[\frac{3}{2},-p,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)\right)\right)\right)$$

- **Problem 369: Result more than twice size of optimal antiderivative.**

$$\int \text{Tan}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$\frac{1}{3\,f}\text{AppellF1}\left[\frac{3}{2},1,-p,\frac{5}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^3\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 1992 leaves):

$$\Bigg(\text{Tan}[e+f x]^3 \left(a+b\,\text{Tan}[e+f x]^2\right)^{2p} \Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}+$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cos}[e+f x]^2\right)\Big/$$

$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(f\,\Bigg(2\,b\,p\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}+$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cos}[e+f x]^2\right)\Big/$$

$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\Bigg)\Bigg)+$$

$$\text{Sec}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{p}\Bigg(\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}+$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cos}[e+f x]^2\right)\Big/$$

$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$

$$\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)\text{Tan}[e+f x]^2\Bigg)\Bigg)+\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^{p}$$

$$\Bigg(-\frac{1}{a}2\,b\,p\,\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-1-p}-$$

$$\left(6\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cos}[e+f x]\,\text{Sin}[e+f x]\right)\Big/$$

$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+\right.$$

$$a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)+$$

$$\Bigg(3\,a\,\text{Cos}[e+f x]^2\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{3\,a}-\right.$$

$$\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)\Bigg)\Big/$$

$$\Bigg(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+2\,\Bigg(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},\right.$$

$$\left.-\text{Tan}[e+f x]^2\right]+a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\Bigg)\,\text{Tan}[e+f x]^2\Bigg)+$$

$$\text{Csc}[e+f x]\,\text{Sec}[e+f x]\,\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}\left(-\text{Hypergeometric2F1}\left[\frac{1}{2},-p,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{p}\right)-$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Cos}[e+f x]^2$$

$$\Bigg(4\,\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]+a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\right)$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-3\,a\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{3\,a}-\right.$$

$$\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\right)+$$

$$2\,\text{Tan}[e+f x]^2\,\Bigg(-b\,p\,\Bigg(-\frac{6}{5}\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},2-p,1,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$a\,\Bigg(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},-p,3,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Bigg)\Bigg)\Big/$$

$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)^2\Bigg)\Bigg)\Bigg)$$

- **Problem 370: Result more than twice size of optimal antiderivative.**

$$\int\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 78 leaves, 3 steps) :

$$\frac{\text{AppellF1}\left[\frac{1}{2},1,-p,\frac{3}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}}{f}$$

Result (type 6, 192 leaves) :

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[2\,(e+f\,x)]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\right)\Big/$$
$$\left(6\,a\,f\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+4\,f\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)$$

- **Problem 371: Result more than twice size of optimal antiderivative.**

$$\int\text{Cot}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 79 leaves, 3 steps) :

$$-\frac{1}{f}\text{AppellF1}\left[-\frac{1}{2},1,-p,\frac{1}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cot}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 1989 leaves) :

$$\left(\text{Cot}[e+f\,x]^3\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2p}\left(-\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+\right.\right.$$
$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\right)\Big/$$
$$\left(-3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(-b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+\right.\right.$$
$$\left.\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)\right)\right)\Big/$$

$$\Bigg(f\Bigg(2\,b\,p\,\text{Sec}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\Bigg(-\text{Hypergeometric2F1}\Big[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sin}[e+f\,x]^2\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Bigg)-$$

$$\text{Csc}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{p}\Bigg(-\text{Hypergeometric2F1}\Big[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}+$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sin}[e+f\,x]^2\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)\Bigg)+$$

$$\text{Cot}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{p}\Bigg(\frac{2\,b\,p\,\text{Hypergeometric2F1}\Big[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\,\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-1-p}}{a}+$$

$$\Big(6\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Cos}[e+f\,x]\,\text{Sin}[e+f\,x]\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+$$

$$a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\Big)\,\text{Tan}[e+f\,x]^2\Big)+$$

$$\Bigg(3\,a\,\text{Sin}[e+f\,x]^2\Bigg(\frac{2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-$$

$$\frac{2}{3}\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Bigg)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\Big]+2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},$$

$$-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\Big)\,\text{Tan}[e+f x]^2\Big)-$$

$$\text{Csc}[e+f x]\,\text{Sec}[e+f x]\,\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}\left(\text{Hypergeometric2F1}\Big[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{p}\right)-$$

$$\Big(3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sin}[e+f x]^2$$

$$\Big(4\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\Big)$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-3\,a\,\Bigg(\frac{2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{3\,a}-$$

$$\frac{2}{3}\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$2\,\text{Tan}[e+f x]^2\,\Big(-b\,p\,\Big(-\frac{6}{5}\,\text{AppellF1}\Big[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\Big[\frac{5}{2},2-p,1,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)+$$

$$a\,\Big(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\Big[\frac{5}{2},1-p,2,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{12}{5}\,\text{AppellF1}\Big[\frac{5}{2},-p,3,\frac{7}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\,\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big(-3\,a\,\text{AppellF1}\Big[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]+2\,\Big(-b\,p\,\text{AppellF1}\Big[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},$$

$$-\text{Tan}[e+f x]^2\Big]+a\,\text{AppellF1}\Big[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f x]^2}{a},-\text{Tan}[e+f x]^2\Big]\Big)\,\text{Tan}[e+f x]^2\Big)^2\Big)\Big)\Big)$$

- **Problem 372: Result more than twice size of optimal antiderivative.**

$$\int \text{Cot}[e+f x]^4\,\left(a+b\,\text{Tan}[e+f x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps) :

$$-\frac{1}{3\,f}\text{AppellF1}\left[-\frac{3}{2},\,1,\,-p,\,-\frac{1}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Cot}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 6, 2468 leaves) :

$$\Bigg(\text{Cot}[e+f\,x]^7\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{2\,p}\,\Bigg(\Bigg(9\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\Bigg)\Big/$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+2\,\Bigg(b\,p\,\text{AppellF1}\left[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]-$$

$$a\,\text{AppellF1}\left[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)-\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

$$\Bigg(\text{Hypergeometric2F1}\left[-\frac{3}{2},\,-p,\,-\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Tan}[e+f\,x]^2\Bigg)\Bigg)\Bigg)\Big/$$

$$\Bigg(3\,f\,\Bigg(\frac{2}{3}\,b\,p\,\text{Csc}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\,\Bigg(\Bigg(9\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\Bigg)\Big/$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+2\,\Bigg(b\,p\,\text{AppellF1}\left[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]-$$

$$a\,\text{AppellF1}\left[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)-\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

$$\Bigg(\text{Hypergeometric2F1}\left[-\frac{3}{2},\,-p,\,-\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Tan}[e+f\,x]^2\Bigg)\Bigg)-$$

$$\text{Cot}[e+f\,x]^2\,\text{Csc}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(\Bigg(9\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\,\text{Sin}[e+f\,x]^2$$

$$\text{Tan}[e+f\,x]^2\Bigg)\Big/\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+2\,\Bigg(b\,p\,\text{AppellF1}\Bigg[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},$$

$$-\text{Tan}[e+f\,x]^2\Bigg]-a\,\text{AppellF1}\left[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\Bigg)\,\text{Tan}[e+f\,x]^2\Bigg)-\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

$$\Bigg(\text{Hypergeometric2F1}\left[-\frac{3}{2},\,-p,\,-\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\,\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\frac{1}{3}\,\text{Cot}[e+f\,x]^3\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,\Bigg(\Bigg(18\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\Big/$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+$$

$$2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)$$

$$\text{Tan}[e+f\,x]^2\Big)+\left(18\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]^3\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-\right.\right.$$

$$\left.\left.a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)+$$

$$\left(9\,a\,\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.\right.$$

$$\left.\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$

$$\left.\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\Big)+$$

$$\frac{1}{a}2\,b\,p\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-1-p}\left(\text{Hypergeometric2F1}\left[-\frac{3}{2},-p,-\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\right.$$

$$\left.3\,\text{Hypergeometric2F1}\left[-\frac{1}{2},-p,\frac{1}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Tan}[e+f\,x]^2\right)-$$

$$\left(9\,a\,\text{AppellF1}\left[\frac{1}{2},-p,1,\frac{3}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sin}[e+f\,x]^2\,\text{Tan}[e+f\,x]^2\right.$$

$$\left(4\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\right)\right.$$

$$\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]+3\,a\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-p,1,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]}{3\,a}-\right.$$

$$\left.\frac{2}{3}\,\text{AppellF1}\left[\frac{3}{2},-p,2,\frac{5}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$

$$2\,\text{Tan}[e+f\,x]^2\left(b\,p\left(-\frac{6}{5}\,\text{AppellF1}\left[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.\right.$$

$$\left.\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},\,2-p,\,1,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$

$$a\left(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},\,1-p,\,2,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$\left.\left.\left.\left.\frac{12}{5}\,\text{AppellF1}\left[\frac{5}{2},\,-p,\,3,\,\frac{7}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},\,-p,\,1,\,\frac{3}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]+2\left(b\,p\,\text{AppellF1}\left[\frac{3}{2},\,1-p,\,1,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.\right.$$

$$\left.\left.\left.-\text{Tan}[e+f\,x]^2\right]-a\,\text{AppellF1}\left[\frac{3}{2},\,-p,\,2,\,\frac{5}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\right]\right)\text{Tan}[e+f\,x]^2\right)^2-$$

$$\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}\left(-6\,\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$

$$3\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\left(\text{Hypergeometric2F1}\left[-\frac{1}{2},\,-p,\,\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)-$$

$$\left.\left.\left.\left.3\,\text{Csc}[e+f\,x]\,\text{Sec}[e+f\,x]\left(-\text{Hypergeometric2F1}\left[-\frac{3}{2},\,-p,\,-\frac{1}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^p\right)\right)\right)\right)\right)$$

- **Problem 373: Unable to integrate problem.**

$$\int \text{Cot}[e+f\,x]^6\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

Optimal (type 6, 83 leaves, 3 steps):

$$-\frac{1}{5\,f}\text{AppellF1}\left[-\frac{5}{2},\,1,\,-p,\,-\frac{3}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cot}[e+f\,x]^5\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right)^{-p}$$

Result (type 8, 25 leaves):

$$\int \text{Cot}[e+f\,x]^6\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\,dx$$

- **Problem 379: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{1}{\left(a+b\,\text{Tan}[c+d\,x]^3\right)^2}\,dx$$

Optimal (type 3, 558 leaves, 21 steps):

$$\frac{\left(a^2-b^2\right)x}{\left(a^2+b^2\right)^2}+\frac{b^{1/3}\left(a^2-2a^{2/3}b^{4/3}-b^2\right)\text{ArcTan}\left[\frac{a^{1/3}-2b^{1/3}\text{Tan}[c+dx]}{\sqrt{3}\,a^{1/3}}\right]}{\sqrt{3}\,a^{1/3}\left(a^2+b^2\right)^2 d}+\frac{b^{1/3}\left(a^{4/3}-2b^{4/3}\right)\text{ArcTan}\left[\frac{a^{1/3}-2b^{1/3}\text{Tan}[c+dx]}{\sqrt{3}\,a^{1/3}}\right]}{3\sqrt{3}\,a^{5/3}\left(a^2+b^2\right)d}-$$

$$\frac{2ab\,\text{Log}\left[a\,\text{Cos}[c+dx]^3+b\,\text{Sin}[c+dx]^3\right]}{3\left(a^2+b^2\right)^2 d}+\frac{b^{1/3}\left(a^2+2a^{2/3}b^{4/3}-b^2\right)\text{Log}\left[a^{1/3}+b^{1/3}\text{Tan}[c+dx]\right]}{3a^{1/3}\left(a^2+b^2\right)^2 d}+$$

$$\frac{b^{1/3}\left(a^{4/3}+2b^{4/3}\right)\text{Log}\left[a^{1/3}+b^{1/3}\text{Tan}[c+dx]\right]}{9a^{5/3}\left(a^2+b^2\right)d}-\frac{b^{1/3}\left(a^2+2a^{2/3}b^{4/3}-b^2\right)\text{Log}\left[a^{2/3}-a^{1/3}b^{1/3}\text{Tan}[c+dx]+b^{2/3}\text{Tan}[c+dx]^2\right]}{6a^{1/3}\left(a^2+b^2\right)^2 d}-$$

$$\frac{b^{1/3}\left(a^{4/3}+2b^{4/3}\right)\text{Log}\left[a^{2/3}-a^{1/3}b^{1/3}\text{Tan}[c+dx]+b^{2/3}\text{Tan}[c+dx]^2\right]}{18a^{5/3}\left(a^2+b^2\right)d}+\frac{b\,(a+\text{Tan}[c+dx]\,(b-a\,\text{Tan}[c+dx]))}{3a\left(a^2+b^2\right)d\left(a+b\,\text{Tan}[c+dx]^3\right)}$$

Result (type 3, 490 leaves) :

$$\frac{\text{ArcTan}[\text{Tan}[c+dx]]}{2\,(a-\mathbb{i}\,b)^2 d}+\frac{\text{ArcTan}[\text{Tan}[c+dx]]}{2\,(a+\mathbb{i}\,b)^2 d}-\frac{2\left(2a^{11/3}b-4a^{7/3}b^{7/3}-a^{5/3}b^3-a^{1/3}b^{13/3}\right)\text{ArcTan}\left[\frac{-a^{1/3}+2b^{1/3}\text{Tan}[c+dx]}{\sqrt{3}\,a^{1/3}}\right]}{3\sqrt{3}\,a^2b^{2/3}\left(a^2+b^2\right)^2 d}+$$

$$\frac{2\left(2a^{11/3}b+4a^{7/3}b^{7/3}-a^{5/3}b^3+a^{1/3}b^{13/3}\right)\text{Log}\left[a^{1/3}+b^{1/3}\text{Tan}[c+dx]\right]}{9a^2b^{2/3}\left(a^2+b^2\right)^2 d}-\frac{\mathbb{i}\,\text{Log}\left[1+\text{Tan}[c+dx]^2\right]}{4\,(a-\mathbb{i}\,b)^2 d}+$$

$$\frac{\mathbb{i}\,\text{Log}\left[1+\text{Tan}[c+dx]^2\right]}{4\,(a+\mathbb{i}\,b)^2 d}-\frac{\left(2a^{11/3}b+4a^{7/3}b^{7/3}-a^{5/3}b^3+a^{1/3}b^{13/3}\right)\text{Log}\left[a^{2/3}-a^{1/3}b^{1/3}\text{Tan}[c+dx]+b^{2/3}\text{Tan}[c+dx]^2\right]}{9a^2b^{2/3}\left(a^2+b^2\right)^2 d}-$$

$$\frac{2ab\,\text{Log}\left[a+b\,\text{Tan}[c+dx]^3\right]}{3\left(a^2+b^2\right)^2 d}+\frac{ab+b^2\,\text{Tan}[c+dx]-ab\,\text{Tan}[c+dx]^2}{3a\left(a^2+b^2\right)d\left(a+b\,\text{Tan}[c+dx]^3\right)}$$

- **Problem 387: Result unnecessarily involves imaginary or complex numbers.**

$$\int\sqrt{a+b\,\text{Tan}[c+dx]^4}\,dx$$

Optimal (type 4, 650 leaves, 8 steps) :

$$\frac{\sqrt{a+b}\,\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[c+d\,x]}{\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}\right]}{2\,d}+\frac{\sqrt{b}\,\text{Tan}[c+d\,x]\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}{d\,\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)}-$$

$$\frac{a^{1/4}\,b^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\,\frac{1}{2}\right]\,\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\,\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}}{d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}+$$

$$\left(\left(\sqrt{a}-\sqrt{b}\right)\,b^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\,\frac{1}{2}\right]\,\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\,\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)-\frac{b^{1/4}\,(a+b)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\,\frac{1}{2}\right]\,\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\,\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}}{2\,a^{1/4}\,\left(\sqrt{a}-\sqrt{b}\right)\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}}+$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)\,(a+b)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\,\sqrt{a}\,\sqrt{b}},\,2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[c+d\,x]}{a^{1/4}}\right],\,\frac{1}{2}\right]\,\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)\,\sqrt{\frac{a+b\,\text{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[c+d\,x]^2\right)^2}}\right)\Big/$$

$$\left(4\,a^{1/4}\,\left(\sqrt{a}-\sqrt{b}\right)\,b^{1/4}\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)$$

Result (type 4, 219 leaves) :

$$\left(\left(\sqrt{a}\,\sqrt{b}\,\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{i\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],\,-1\right]+\left(\sqrt{a}-i\,\sqrt{b}\right)\right.\right.$$

$$\left.\left.\left(-\sqrt{b}\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{i\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],\,-1\right]+\left(-i\,\sqrt{a}+\sqrt{b}\right)\,\text{EllipticPi}\left[-\frac{i\,\sqrt{a}}{\sqrt{b}},\,i\,\text{ArcSinh}\left[\sqrt{\frac{i\,\sqrt{b}}{\sqrt{a}}}\,\text{Tan}[c+d\,x]\right],\,-1\right]\right)\right)$$

$$\left.\sqrt{1+\frac{b\,\text{Tan}[c+d\,x]^4}{a}}\right)\Big/\left(\sqrt{\frac{i\,\sqrt{b}}{\sqrt{a}}}\,d\,\sqrt{a+b\,\text{Tan}[c+d\,x]^4}\right)$$

- **Problem 388: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{1}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]^4}}\,dx$$

Optimal (type 4, 348 leaves, 4 steps):

$$\frac{\mathrm{ArcTan}\left[\frac{\sqrt{a+b}\,\mathrm{Tan}[c+d\,x]}{\sqrt{a+b\,\mathrm{Tan}[c+d\,x]^4}}\right]}{2\sqrt{a+b}\,d}-\frac{b^{1/4}\,\mathrm{EllipticF}\left[2\,\mathrm{ArcTan}\left[\frac{b^{1/4}\,\mathrm{Tan}[c+d\,x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\mathrm{Tan}[c+d\,x]^2\right)\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\mathrm{Tan}[c+d\,x]^2\right)^2}}}{2\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)d\sqrt{a+b\,\mathrm{Tan}[c+d\,x]^4}}+$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)\mathrm{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\sqrt{b}},2\,\mathrm{ArcTan}\left[\frac{b^{1/4}\,\mathrm{Tan}[c+d\,x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\mathrm{Tan}[c+d\,x]^2\right)\sqrt{\frac{a+b\,\mathrm{Tan}[c+d\,x]^4}{\left(\sqrt{a}+\sqrt{b}\,\mathrm{Tan}[c+d\,x]^2\right)^2}}\right)\Big/$$

$$\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,d\sqrt{a+b\,\mathrm{Tan}[c+d\,x]^4}\right)$$

Result (type 4, 106 leaves):

$$-\frac{i\,\mathrm{EllipticPi}\left[-\frac{i\sqrt{a}}{\sqrt{b}},i\,\mathrm{ArcSinh}\left[\sqrt{\frac{i\sqrt{b}}{\sqrt{a}}}\,\mathrm{Tan}[c+d\,x]\right],-1\right]\sqrt{1+\frac{b\,\mathrm{Tan}[c+d\,x]^4}{a}}}{\sqrt{\frac{i\sqrt{b}}{\sqrt{a}}}\,d\sqrt{a+b\,\mathrm{Tan}[c+d\,x]^4}}$$

- **Problem 389: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[x]^3\sqrt{a+b\,\mathrm{Tan}[x]^4}\,dx$$

Optimal (type 3, 103 leaves, 8 steps):

$$\frac{(a+2\,b)\,\mathrm{ArcTanh}\left[\frac{\sqrt{b}\,\mathrm{Tan}[x]^2}{\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]}{4\sqrt{b}}+\frac{1}{2}\sqrt{a+b}\,\mathrm{ArcTanh}\left[\frac{a-b\,\mathrm{Tan}[x]^2}{\sqrt{a+b}\sqrt{a+b\,\mathrm{Tan}[x]^4}}\right]-\frac{1}{4}\left(2-\mathrm{Tan}[x]^2\right)\sqrt{a+b\,\mathrm{Tan}[x]^4}$$

Result (type 4, 107 023 leaves): Display of huge result suppressed!

- **Problem 390: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[x]\sqrt{a+b\,\mathrm{Tan}[x]^4}\,dx$$

Optimal (type 3, 90 leaves, 8 steps):

$$-\frac{1}{2}\sqrt{b}\,\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]-\frac{1}{2}\sqrt{a+b}\,\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]+\frac{1}{2}\sqrt{a+b\,\text{Tan}[x]^4}$$

Result (type 4, 84 341 leaves): Display of huge result suppressed!

- **Problem 392: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Tan}[x]^2\sqrt{a+b\,\text{Tan}[x]^4}\,dx$$

Optimal (type 4, 643 leaves, 12 steps):

$$-\frac{1}{2}\sqrt{a+b}\,\text{ArcTan}\left[\frac{\sqrt{a+b}\,\text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]+\frac{1}{3}\text{Tan}[x]\sqrt{a+b\,\text{Tan}[x]^4}-\frac{\sqrt{b}\,\text{Tan}[x]\sqrt{a+b\,\text{Tan}[x]^4}}{\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2}+$$

$$\frac{a^{1/4}b^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}}{\sqrt{a+b\,\text{Tan}[x]^4}}+$$

$$\frac{a^{3/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}}{3\,b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}}-$$

$$\frac{\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}}{2\,a^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}}+$$

$$\frac{b^{1/4}(a+b)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}}{2\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)\sqrt{a+b\,\text{Tan}[x]^4}}-$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)(a+b)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\,\text{Tan}[x]^2\right)^2}}\right)\Big/$$

$$\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)$$

Result (type 4, 1188 leaves) :

$$\sqrt{\frac{3 a+3 b+4 a \cos [2 x]-4 b \cos [2 x]+a \cos [4 x]+b \cos [4 x]}{3+4 \cos [2 x]+\cos [4 x]}}\left(-\frac{1}{2} \sin [2 x]+\frac{\tan [x]}{3}\right)-$$

$$\left(a \sqrt{\frac{3 a+3 b+4 a \cos [2 x]-4 b \cos [2 x]+a \cos [4 x]+b \cos [4 x]}{3+4 \cos [2 x]+\cos [4 x]}}\right.$$

$$(10 a+6 b+13 a \cos [2 x]-3 b \cos [2 x]+6 a \cos [4 x]-6 b \cos [4 x]+3 a \cos [6 x]+3 b \cos [6 x])$$

$$\left(1+\tan [x]^2\right) \sqrt{\frac{\sqrt{a}-\mathrm{i} \sqrt{b} \tan [x]^2}{\sqrt{a}}} \sqrt{\frac{\sqrt{a}+\mathrm{i} \sqrt{b} \tan [x]^2}{\sqrt{a}}} \sqrt{\frac{a+b \tan [x]^4}{a}}$$

$$\left(3 a \sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]+3 \sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} b \tan [x]^5+3 \mathrm{i} a \operatorname{EllipticPi}\left[-\frac{\mathrm{i} \sqrt{a}}{\sqrt{b}}, \mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],-1\right] \sqrt{1+\frac{b \tan [x]^4}{a}}+\right.$$

$$3 \mathrm{i} b \operatorname{EllipticPi}\left[-\frac{\mathrm{i} \sqrt{a}}{\sqrt{b}}, \mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],-1\right] \sqrt{1+\frac{b \tan [x]^4}{a}}+3 \mathrm{i} a \operatorname{EllipticPi}\left[-\frac{\mathrm{i} \sqrt{a}}{\sqrt{b}}, \mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],\right.$$

$$\left.-1\right] \tan [x]^2 \sqrt{1+\frac{b \tan [x]^4}{a}}+3 \mathrm{i} b \operatorname{EllipticPi}\left[-\frac{\mathrm{i} \sqrt{a}}{\sqrt{b}}, \mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],-1\right] \tan [x]^2 \sqrt{1+\frac{b \tan [x]^4}{a}}-$$

$$3 \sqrt{a} \sqrt{b} \operatorname{EllipticE}\left[\mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],-1\right]\left(1+\tan [x]^2\right) \sqrt{1+\frac{b \tan [x]^4}{a}}+$$

$$\left.\left.\left(-2 \mathrm{i} a+3 \sqrt{a} \sqrt{b}-3 \mathrm{i} b\right) \operatorname{EllipticF}\left[\mathrm{i} \operatorname{ArcSinh}\left[\sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}} \tan [x]\right],-1\right]\left(1+\tan [x]^2\right) \sqrt{1+\frac{b \tan [x]^4}{a}}\right)\right) \Big/$$

$$\left(6 \sqrt{\frac{\mathrm{i} \sqrt{b}}{\sqrt{a}}}(3 a+3 b+4 a \cos [2 x]-4 b \cos [2 x]+a \cos [4 x]+b \cos [4 x])\right.$$

$$\left(a^2 \sec [x]^2-a^2 \sec [x]^2 \tan [x]^2-2 a^2 \sec [x]^2 \tan [x]^4+4 a b \sec [x]^2 \tan [x]^4+2 a b \sec [x]^2 \tan [x]^6-2 a b \sec [x]^2 \tan [x]^8+\right.$$

$$3 b^2 \text{Sec}[x]^2 \text{Tan}[x]^8 + 3 b^2 \text{Sec}[x]^2 \text{Tan}[x]^{10} - 3 a^2 \text{Sec}[x]^2 \sqrt{\frac{\sqrt{a} - i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{\sqrt{a} + i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{a + b \text{Tan}[x]^4}{a}} +$$

$$3 a^2 \text{Sec}[x]^2 \text{Tan}[x]^2 \sqrt{\frac{\sqrt{a} - i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{\sqrt{a} + i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{a + b \text{Tan}[x]^4}{a}} - 9 a b \text{Sec}[x]^2 \text{Tan}[x]^4 \sqrt{\frac{\sqrt{a} - i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}}$$

$$\sqrt{\frac{\sqrt{a} + i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{a + b \text{Tan}[x]^4}{a}} - 3 a b \text{Sec}[x]^2 \text{Tan}[x]^6 \sqrt{\frac{\sqrt{a} - i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{\sqrt{a} + i \sqrt{b} \text{Tan}[x]^2}{\sqrt{a}}} \sqrt{\frac{a + b \text{Tan}[x]^4}{a}} \Bigg) \Bigg)$$

- **Problem 393: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[x]^3 \left(a + b \text{Tan}[x]^4\right)^{3/2} dx$$

Optimal (type 3, 148 leaves, 9 steps) :

$$\frac{\left(3 a^2 + 12 a b + 8 b^2\right) \text{ArcTanh}\left[\frac{\sqrt{b} \text{Tan}[x]^2}{\sqrt{a+b \text{Tan}[x]^4}}\right]}{16 \sqrt{b}} + \frac{1}{2} (a + b)^{3/2} \text{ArcTanh}\left[\frac{a - b \text{Tan}[x]^2}{\sqrt{a + b} \sqrt{a + b \text{Tan}[x]^4}}\right] -$$

$$\frac{1}{16} \left(8 (a + b) - (3 a + 4 b) \text{Tan}[x]^2\right) \sqrt{a + b \text{Tan}[x]^4} - \frac{1}{24} \left(4 - 3 \text{Tan}[x]^2\right) \left(a + b \text{Tan}[x]^4\right)^{3/2}$$

Result (type 4, 168 354 leaves) : Display of huge result suppressed !

- **Problem 394: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[x] \left(a + b \text{Tan}[x]^4\right)^{3/2} dx$$

Optimal (type 3, 126 leaves, 9 steps) :

$$-\frac{1}{4} \sqrt{b} (3 a + 2 b) \text{ArcTanh}\left[\frac{\sqrt{b} \text{Tan}[x]^2}{\sqrt{a + b \text{Tan}[x]^4}}\right] -$$

$$\frac{1}{2} (a + b)^{3/2} \text{ArcTanh}\left[\frac{a - b \text{Tan}[x]^2}{\sqrt{a + b} \sqrt{a + b \text{Tan}[x]^4}}\right] + \frac{1}{4} \left(2 (a + b) - b \text{Tan}[x]^2\right) \sqrt{a + b \text{Tan}[x]^4} + \frac{1}{6} \left(a + b \text{Tan}[x]^4\right)^{3/2}$$

Result (type 4, 145 479 leaves) : Display of huge result suppressed !

- **Problem 396: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[x]^3}{\sqrt{a + b \text{Tan}[x]^4}} dx$$

Optimal (type 3, 74 leaves, 7 steps):

$$\frac{\text{ArcTanh}\left[\frac{\sqrt{b}\,\text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{b}}+\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}$$

Result (type 4, 60 266 leaves): Display of huge result suppressed!

- **Problem 397: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\,dx$$

Optimal (type 3, 41 leaves, 4 steps):

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}$$

Result (type 4, 38 152 leaves): Display of huge result suppressed!

- **Problem 398: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\,dx$$

Optimal (type 3, 70 leaves, 9 steps):

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[x]^4}}{\sqrt{a}}\right]}{2\sqrt{a}}$$

Result (type 4, 114 664 leaves): Display of huge result suppressed!

- **Problem 399: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\text{Tan}[x]^2}{\sqrt{a+b\,\text{Tan}[x]^4}}\,dx$$

Optimal (type 4, 291 leaves, 4 steps):

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a+b}\ \text{Tan}[x]}{\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\sqrt{a+b}}+\frac{a^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\ \text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\ \text{Tan}[x]^2\right)^2}}}{2\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}}-$$

$$\left(\left(\sqrt{a}+\sqrt{b}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{b}\right)^2}{4\sqrt{a}\ \sqrt{b}},2\,\text{ArcTan}\left[\frac{b^{1/4}\,\text{Tan}[x]}{a^{1/4}}\right],\frac{1}{2}\right]\left(\sqrt{a}+\sqrt{b}\ \text{Tan}[x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[x]^4}{\left(\sqrt{a}+\sqrt{b}\ \text{Tan}[x]^2\right)^2}}\right)\Big/$$

$$\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{b}\right)b^{1/4}\sqrt{a+b\,\text{Tan}[x]^4}\right)$$

Result (type 4, 122 leaves) :

$$-\frac{1}{\sqrt{\frac{i\sqrt{b}}{\sqrt{a}}}\ \sqrt{a+b\,\text{Tan}[x]^4}}$$

$$i\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{\frac{i\sqrt{b}}{\sqrt{a}}}\ \text{Tan}[x]\right],-1\right]-\text{EllipticPi}\left[-\frac{i\sqrt{a}}{\sqrt{b}},i\,\text{ArcSinh}\left[\sqrt{\frac{i\sqrt{b}}{\sqrt{a}}}\ \text{Tan}[x]\right],-1\right]\right)\sqrt{1+\frac{b\,\text{Tan}[x]^4}{a}}$$

- **Problem 400: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[x]^3}{\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 71 leaves, 6 steps) :

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\ \sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{3/2}}-\frac{1-\text{Tan}[x]^2}{2\,(a+b)\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 61 650 leaves) : Display of huge result suppressed!

- **Problem 401: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 74 leaves, 6 steps) :

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\ \sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{3/2}}+\frac{a+b\,\text{Tan}[x]^2}{2\,a\,(a+b)\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 61 670 leaves) : Display of huge result suppressed!

- **Problem 402: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 121 leaves, 12 steps) :

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{3/2}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[x]^4}}{\sqrt{a}}\right]}{2\,a^{3/2}}+\frac{1}{2\,a\,\sqrt{a+b\,\text{Tan}[x]^4}}-\frac{a+b\,\text{Tan}[x]^2}{2\,a\,(a+b)\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 132 311 leaves) : Display of huge result suppressed!

- **Problem 403: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[x]^3}{\left(a+b\,\text{Tan}[x]^4\right)^{5/2}}\,dx$$

Optimal (type 3, 109 leaves, 7 steps) :

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{5/2}}-\frac{1-\text{Tan}[x]^2}{6\,(a+b)\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}-\frac{3\,a+(-2\,a+b)\,\text{Tan}[x]^2}{6\,a\,(a+b)^2\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 38 433 leaves) : Display of huge result suppressed!

- **Problem 404: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{5/2}}\,dx$$

Optimal (type 3, 117 leaves, 7 steps) :

$$-\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{5/2}}+\frac{a+b\,\text{Tan}[x]^2}{6\,a\,(a+b)\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}+\frac{3\,a^2+b\,(5\,a+2\,b)\,\text{Tan}[x]^2}{6\,a^2\,(a+b)^2\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 38 453 leaves) : Display of huge result suppressed!

- **Problem 405: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[x]}{\left(a+b\,\text{Tan}[x]^4\right)^{5/2}}\,dx$$

Optimal (type 3, 183 leaves, 14 steps) :

$$\frac{\text{ArcTanh}\left[\frac{a-b\,\text{Tan}[x]^2}{\sqrt{a+b}\,\sqrt{a+b\,\text{Tan}[x]^4}}\right]}{2\,(a+b)^{5/2}}-\frac{\text{ArcTanh}\left[\frac{\sqrt{a+b\,\text{Tan}[x]^4}}{\sqrt{a}}\right]}{2\,a^{5/2}}+\frac{1}{6\,a\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}-$$
$$\frac{a+b\,\text{Tan}[x]^2}{6\,a\,(a+b)\,\left(a+b\,\text{Tan}[x]^4\right)^{3/2}}+\frac{1}{2\,a^2\,\sqrt{a+b\,\text{Tan}[x]^4}}-\frac{3\,a^2+b\,(5\,a+2\,b)\,\text{Tan}[x]^2}{6\,a^2\,(a+b)^2\,\sqrt{a+b\,\text{Tan}[x]^4}}$$

Result (type 4, 179 174 leaves) : Display of huge result suppressed !

- **Problem 408: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{(d\,\text{Tan}[e+f\,x])^m}{a+b\,\sqrt{c\,\text{Tan}[e+f\,x]}}\,dx$$

Optimal (type 5, 460 leaves, 14 steps) :

$$\frac{a\,\left(a^2-b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,-\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m}{2\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)}+$$
$$\frac{a\,\left(a^2+b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,1+m,\,2+m,\,\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m}{2\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)}+$$
$$\frac{b^4\,c^2\,\text{Hypergeometric2F1}\left[1,\,2\,(1+m),\,3+2\,m,\,-\frac{b\,\sqrt{c\,\text{Tan}[e+f\,x]}}{a}\right]\,\text{Tan}[e+f\,x]\,(d\,\text{Tan}[e+f\,x])^m}{a\,\left(a^4+b^4\,c^2\right)\,f\,(1+m)}-\frac{1}{c\,\left(a^4+b^4\,c^2\right)\,f\,(3+2\,m)}$$
$$b\,\left(a^2-b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,-\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,(c\,\text{Tan}[e+f\,x])^{3/2}\,(d\,\text{Tan}[e+f\,x])^m-$$
$$\frac{1}{c\,\left(a^4+b^4\,c^2\right)\,f\,(3+2\,m)}b\,\left(a^2+b^2\,\sqrt{-c^2}\right)\,\text{Hypergeometric2F1}\left[1,\,\frac{1}{2}\,(3+2\,m),\,\frac{1}{2}\,(5+2\,m),\,\frac{c\,\text{Tan}[e+f\,x]}{\sqrt{-c^2}}\right]\,(c\,\text{Tan}[e+f\,x])^{3/2}\,(d\,\text{Tan}[e+f\,x])^m$$

Result (type 5, 557 leaves) :

$$\frac{1}{f(1+2m)}2b\sqrt{c\,\text{Tan}[e+fx]}\,(d\,\text{Tan}[e+fx])^m\left(\frac{\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,-\frac{1}{2}-m,\frac{1}{2}-m,-\frac{i}{-i+\text{Tan}[e+fx]}\right]\left(\frac{\text{Tan}[e+fx]}{-i+\text{Tan}[e+fx]}\right)^{-\frac{1}{2}-m}}{-2\,i\,a^2-2b^2c}+\right.$$

$$\frac{\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,-\frac{1}{2}-m,\frac{1}{2}-m,\frac{i}{i+\text{Tan}[e+fx]}\right]\left(\frac{\text{Tan}[e+fx]}{i+\text{Tan}[e+fx]}\right)^{-\frac{1}{2}-m}}{2\,i\,a^2-2b^2c}+$$

$$\left.\frac{\text{Hypergeometric2F1}\left[-\frac{1}{2}-m,-\frac{1}{2}-m,\frac{1}{2}-m,-\frac{a^2}{b^2c\left(-\frac{a^2}{b^2c}+\text{Tan}[e+fx]\right)}\right]\left(\frac{\text{Tan}[e+fx]}{-\frac{a^2}{b^2c}+\text{Tan}[e+fx]}\right)^{-\frac{1}{2}-m}}{\frac{a^4}{b^2c}+b^2c}\right)-$$

$$\frac{1}{fm}a\,(d\,\text{Tan}[e+fx])^m\left(\frac{\text{Hypergeometric2F1}\left[-m,-m,1-m,-\frac{i}{-i+\text{Tan}[e+fx]}\right]\left(\frac{\text{Tan}[e+fx]}{-i+\text{Tan}[e+fx]}\right)^{-m}}{-2\,i\,a^2-2b^2c}+\right.$$

$$\left.\frac{\text{Hypergeometric2F1}\left[-m,-m,1-m,\frac{i}{i+\text{Tan}[e+fx]}\right]\left(\frac{\text{Tan}[e+fx]}{i+\text{Tan}[e+fx]}\right)^{-m}}{2\,i\,a^2-2b^2c}+\frac{\text{Hypergeometric2F1}\left[-m,-m,1-m,-\frac{a^2}{b^2c\left(-\frac{a^2}{b^2c}+\text{Tan}[e+fx]\right)}\right]\left(\frac{\text{Tan}[e+fx]}{-\frac{a^2}{b^2c}+\text{Tan}[e+fx]}\right)^{-m}}{\frac{a^4}{b^2c}+b^2c}\right)$$

- **Problem 421: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Cot}[e+fx])^m\left(b\,\text{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 5, 78 leaves, 4 steps) :

$$\frac{1}{f(1-m+2p)}(d\,\text{Cot}[e+fx])^m\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}(1-m+2p),\frac{1}{2}(3-m+2p),-\text{Tan}[e+fx]^2\right]\text{Tan}[e+fx]\left(b\,\text{Tan}[e+fx]^2\right)^p$$

Result (type 6, 3103 leaves) :

$$-\left(\left(2\,e^{2p\,\text{Log}[\text{Cot}[e+fx]]+2p\,\text{Log}[\text{Tan}[e+fx]]}(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.\right.$$

$$\cos\left[\frac{1}{2}(e+fx)\right]^2 \cot\left[\frac{1}{2}(e+fx)\right] \cot[e+fx]^{m-2p} (d\cot[e+fx])^m \left(b\tan[e+fx]^2\right)^p\Bigg)\Bigg/$$

$$\Bigg(f(-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\cot\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\Bigg(\Bigg(2(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\cos\left[\frac{1}{2}(e+fx)\right]^2\cot[e+fx]^m$$

$$\tan[e+fx]^{2p}\Bigg)\Bigg/\Bigg((-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\cot\left[\frac{1}{2}(e+fx)\right]^2\right)\Bigg)+$$

$$\Bigg((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\cot\left[\frac{1}{2}(e+fx)\right]^2$$

$$\cot[e+fx]^m\tan[e+fx]^{2p}\Bigg)\Bigg/\Bigg((-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$\left.(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\cot\left[\frac{1}{2}(e+fx)\right]^2\right)\Bigg)-$$

$$\Bigg(2(-3+m-2p)\cos\left[\frac{1}{2}(e+fx)\right]^2\cot\left[\frac{1}{2}(e+fx)\right]\cot[e+fx]^m\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\right.\right.$$

$$\left.\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\sec\left[\frac{1}{2}(e+fx)\right]^2\tan\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)(-m+2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\right.$$

$$\left.\left.1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]\sec\left[\frac{1}{2}(e+fx)\right]^2\tan\left[\frac{1}{2}(e+fx)\right]\right)\tan[e+fx]^{2p}\Bigg)\Bigg/$$

$$\Bigg((-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\tan\left[\frac{1}{2}(e+fx)\right]^2,-\tan\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m\Bigg(-(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Csc}\left[\frac{1}{2}(e+fx)\right]^2+(-3+m-2p)\,\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\Bigg(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\right.$$

$$\left.\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}\left(\frac{1}{2}-\frac{m}{2}+p\right)(-m+2p)$$

$$\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$

$$2\Bigg(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}2\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,-m+2p,3,\frac{7}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(-m+2p)\,\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,1-m+2p,\right.$$

$$\left.2,\frac{7}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)+$$

$$2(m-2p)\Bigg(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,1-m+2p,2,\frac{7}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(1-m+2p)\,\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,2-m+2p,1,\right.$$

$$\left.\frac{7}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Bigg)\Bigg)\Bigg)\text{Tan}[e+fx]^{2p}\Bigg)\Bigg/$$

$$\Bigg((-1+m-2p)\Bigg(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,-m+2p,2,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$2(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1-m+2p,1,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,-m+2p,1,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\Bigg)^2\Bigg)-$$

$$\left(4\,(-3+m-2p)\,p\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\right.$$
$$\left.\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m\,\text{Sec}[e+fx]^2\,\text{Tan}[e+fx]^{-1+2p}\right)\Big/$$
$$\left((-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$2\,(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$
$$\left.\left.(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$
$$\left(2\,m\,(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}(e+fx)\right]^2\text{Cot}\left[\frac{1}{2}(e+fx)\right]\text{Cot}[e+fx]^m\,\text{Csc}[e+fx]^2\,\text{Tan}[e+fx]^{1+2p}\right)\Big/$$
$$\left((-1+m-2p)\left(2\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,-m+2p,\,2,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$
$$2\,(m-2p)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1-m+2p,\,1,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$
$$\left.\left.(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,-m+2p,\,1,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)\Bigg)\Bigg)\Bigg)$$

- **Problem 422: Result more than twice size of optimal antiderivative.**

$$\int(d\,\text{Cot}[e+fx])^m\left(a+b\,\text{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 6, 107 leaves, 4 steps):

$$\frac{1}{f\,(1-m)}\text{AppellF1}\left[\frac{1-m}{2},\,1,\,-p,\,\frac{3-m}{2},\,-\text{Tan}[e+fx]^2,\,-\frac{b\,\text{Tan}[e+fx]^2}{a}\right](d\,\text{Cot}[e+fx])^m\,\text{Tan}[e+fx]\left(a+b\,\text{Tan}[e+fx]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+fx]^2}{a}\right)^{-p}$$

Result (type 6, 2256 leaves):

$$-\left(\left(\left(a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+fx]^2}{a},\,-\text{Tan}[e+fx]^2\right]\right.\right.\right.$$
$$\left.\text{Cot}[e+fx]^{3+m}\,(d\,\text{Cot}[e+fx])^m\,\text{Sin}[e+fx]^2\left(a+b\,\text{Tan}[e+fx]^2\right)^{2p}\right)\Big/$$
$$\left(f\,(-1+m)\left(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+fx]^2}{a},\,-\text{Tan}[e+fx]^2\right]+2\,a\,\text{AppellF1}\left[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},\right.\right.\right.$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^2\Bigg)$$

$$\Bigg(-\Bigg(2\,a\,b\,(-3+m)\,p\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^m\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^{-1+p}\Bigg)\Big/$$

$$\Bigg((-1+m)\,\Bigg(-2\,b\,p\,\text{AppellF1}\Big[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+2\,a\,\text{AppellF1}\Big[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(a\,(-3+m)\,(3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^{2+m}\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((-1+m)\,\Bigg(-2\,b\,p\,\text{AppellF1}\Big[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+2\,a\,\text{AppellF1}\Big[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^2\Bigg)\Bigg)-$$

$$\Bigg(2\,a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cos}[e+f\,x]\,\text{Cot}[e+f\,x]^{3+m}$$

$$\text{Sin}[e+f\,x]\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((-1+m)\,\Bigg(-2\,b\,p\,\text{AppellF1}\Big[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+2\,a\,\text{AppellF1}\Big[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^2\Bigg)\Bigg)-$$

$$\Bigg(a\,(-3+m)\,\text{Cot}[e+f\,x]^{3+m}\,\text{Sin}[e+f\,x]^2\,\Bigg(1/(a\,(3-m))\,2\,b\,(1-m)\,p\,\text{AppellF1}\Big[1+\frac{1-m}{2},\,1-p,\,1,\,1+\frac{3-m}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-1/(3-m)\,2\,(1-m)$$

$$\text{AppellF1}\Big[1+\frac{1-m}{2},\,-p,\,2,\,1+\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((-1+m)\,\Bigg(-2\,b\,p\,\text{AppellF1}\Big[\frac{3-m}{2},\,1-p,\,1,\,\frac{5-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+2\,a\,\text{AppellF1}\Big[\frac{3-m}{2},\,-p,\,2,\,\frac{5-m}{2},$$

$$-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]+a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(a\,(-3+m)\,\text{AppellF1}\Big[\frac{1-m}{2},\,-p,\,1,\,\frac{3-m}{2},\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\,-\text{Tan}[e+f\,x]^2\Big]\,\text{Cot}[e+f\,x]^{3+m}\,\text{Sin}[e+f\,x]^2\,\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p$$

$$\left(-2\,a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cot}[e+f\,x]\,\text{Csc}[e+f\,x]^2+\right.$$
$$a\,(-3+m)\,\text{Cot}[e+f\,x]^2\left(\frac{1}{a\,(3-m)}2\,b\,(1-m)\,p\,\text{AppellF1}\left[1+\frac{1-m}{2},1-p,1,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\right.$$
$$\left.\text{Tan}[e+f\,x]-\frac{1}{3-m}2\,(1-m)\,\text{AppellF1}\left[1+\frac{1-m}{2},-p,2,1+\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)-$$
$$2\,b\,p\left(-\frac{1}{5-m}2\,(3-m)\,\text{AppellF1}\left[1+\frac{3-m}{2},1-p,2,1+\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$
$$\left.\frac{1}{a\,(5-m)}2\,b\,(3-m)\,(1-p)\,\text{AppellF1}\left[1+\frac{3-m}{2},2-p,1,1+\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)+$$
$$2\,a\left(\frac{1}{a\,(5-m)}2\,b\,(3-m)\,p\,\text{AppellF1}\left[1+\frac{3-m}{2},1-p,2,1+\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-\right.$$
$$\left.\left.\left.\left.\frac{1}{5-m}4\,(3-m)\,\text{AppellF1}\left[1+\frac{3-m}{2},-p,3,1+\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\right)\right)\right)\right)\Big/\left((-1+m)\right.$$
$$\left(-2\,b\,p\,\text{AppellF1}\left[\frac{3-m}{2},1-p,1,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]+2\,a\,\text{AppellF1}\left[\frac{3-m}{2},-p,2,\frac{5-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},\right.\right.$$
$$\left.\left.\left.\left.\left.-\text{Tan}[e+f\,x]^2\right]+a\,(-3+m)\,\text{AppellF1}\left[\frac{1-m}{2},-p,1,\frac{3-m}{2},-\frac{b\,\text{Tan}[e+f\,x]^2}{a},-\text{Tan}[e+f\,x]^2\right]\text{Cot}[e+f\,x]^2\right)^2\right)\right)\right)\right)$$

- **Problem 423: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int(d\,\text{Cot}[e+f\,x])^m\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p\,dx$$

Optimal (type 5, 80 leaves, 4 steps):

$$\frac{1}{f\,(1-m+n\,p)}(d\,\text{Cot}[e+f\,x])^m\,\text{Hypergeometric2F1}\left[1,\frac{1}{2}(1-m+n\,p),\frac{1}{2}(3-m+n\,p),-\text{Tan}[e+f\,x]^2\right]\text{Tan}[e+f\,x]\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p$$

Result (type 6, 3282 leaves):

$$-\left(\left(\left(2\,e^{n\,p\,\text{Log}[\text{Cot}[e+f\,x]]+n\,p\,\text{Log}[\text{Tan}[e+f\,x]]}\,(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),-m+n\,p,1,\frac{1}{2}(3-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.\right.$$
$$\left.\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\,\text{Cot}[e+f\,x]^{m-n\,p}\,(d\,\text{Cot}[e+f\,x])^m\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p\right)\Big/$$
$$\left(f\,(-1+m-n\,p)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),-m+n\,p,2,\frac{1}{2}(5-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.\right.$$
$$2\,(m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),1-m+n\,p,1,\frac{1}{2}(5-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)$$

$$\Bigg(\Bigg(2(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cos}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Cot}[e+f x]^m \text{Tan}[e+f x]^{n p}\Bigg) \Bigg/ \Bigg((-1+m-n p)\Bigg(2 \text{AppellF1}\left[\frac{1}{2}(3-m+n p),-m+n p,2,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+2(m-n p) \text{AppellF1}\left[\frac{1}{2}(3-m+n p),1-m+n p,1,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg((-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\text{Cot}\left[\frac{1}{2}(e+f x)\right]^2 \text{Cot}[e+f x]^m \text{Tan}[e+f x]^{n p}\Bigg) \Bigg/$$

$$\Bigg((-1+m-n p)\Bigg(2 \text{AppellF1}\left[\frac{1}{2}(3-m+n p),-m+n p,2,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2(m-n p) \text{AppellF1}\left[\frac{1}{2}(3-m+n p),1-m+n p,1,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)-$$

$$\Bigg(2(-3+m-n p) \text{Cos}\left[\frac{1}{2}(e+f x)\right]^2 \text{Cot}\left[\frac{1}{2}(e+f x)\right] \text{Cot}[e+f x]^m \Bigg(-\frac{1}{3-m+n p}(1-m+n p) \text{AppellF1}\left[1+\frac{1}{2}(1-m+n p),-m+\right.$$

$$\left.n p,2,1+\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+$$

$$\frac{1}{3-m+n p}(-m+n p)(1-m+n p) \text{AppellF1}\left[1+\frac{1}{2}(1-m+n p),1-m+n p,1,1+\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg) \text{Tan}[e+f x]^{n p}\Bigg) \Bigg/$$

$$\Bigg((-1+m-n p)\Bigg(2 \text{AppellF1}\left[\frac{1}{2}(3-m+n p),-m+n p,2,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2(m-n p) \text{AppellF1}\left[\frac{1}{2}(3-m+n p),1-m+n p,1,\frac{1}{2}(5-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Cot}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2(-3+m-n p) \text{AppellF1}\left[\frac{1}{2}(1-m+n p),-m+n p,1,\frac{1}{2}(3-m+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]$$

$$\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Cot}\left[\frac{1}{2}(e+fx)\right] \operatorname{Cot}[e+fx]^m \left(-(-3+m-np)\,\text{AppellF1}\left[\frac{1}{2}(1-m+np), -m+np, 1, \frac{1}{2}(3-m+np),\right.\right.$$

$$\left.\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Cot}\left[\frac{1}{2}(e+fx)\right] \operatorname{Csc}\left[\frac{1}{2}(e+fx)\right]^2 + (-3+m-np)\operatorname{Cot}\left[\frac{1}{2}(e+fx)\right]^2$$

$$\left(-\frac{1}{3-m+np}(1-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(1-m+np), -m+np, 2, 1+\frac{1}{2}(3-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$

$$\operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right] + \frac{1}{3-m+np}(-m+np)\,(1-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(1-m+np), 1-m+np,\right.$$

$$\left.\left.1, 1+\frac{1}{2}(3-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right) +$$

$$2\left(-\frac{1}{5-m+np}2\,(3-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+np), -m+np, 3, 1+\frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right] + \frac{1}{5-m+np}(-m+np)\,(3-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+np),\right.$$

$$\left.\left.1-m+np, 2, 1+\frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right) +$$

$$2\,(m-np)\left(-\frac{1}{5-m+np}(3-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+np), 1-m+np, 2, 1+\frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$\left.-\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right] + \frac{1}{5-m+np}(1-m+np)\,(3-m+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3-m+np), 2-\right.$$

$$\left.\left.\left.\left.m+np, 1, 1+\frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Sec}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right) \operatorname{Tan}[e+fx]^{np}\right) \Big/$$

$$\left((-1+m-np)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+np), -m+np, 2, \frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +\right.\right.$$

$$2\,(m-np)\,\text{AppellF1}\left[\frac{1}{2}(3-m+np), 1-m+np, 1, \frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +$$

$$\left.\left.(-3+m-np)\,\text{AppellF1}\left[\frac{1}{2}(1-m+np), -m+np, 1, \frac{1}{2}(3-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] \operatorname{Cot}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right) -$$

$$\left(2\,np\,(-3+m-np)\,\text{AppellF1}\left[\frac{1}{2}(1-m+np), -m+np, 1, \frac{1}{2}(3-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$

$$\left.\operatorname{Cos}\left[\frac{1}{2}(e+fx)\right]^2 \operatorname{Cot}\left[\frac{1}{2}(e+fx)\right] \operatorname{Cot}[e+fx]^m \operatorname{Sec}[e+fx]^2 \operatorname{Tan}[e+fx]^{-1+np}\right) \Big/$$

$$\left((-1+m-np)\left(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+np), -m+np, 2, \frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +\right.\right.$$

$$2\,(m-np)\,\text{AppellF1}\left[\frac{1}{2}(3-m+np), 1-m+np, 1, \frac{1}{2}(5-m+np), \operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right] +$$

$$(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),-m+n\,p,1,\frac{1}{2}(3-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\Big)\Big)+$$
$$\Big(2\,m\,(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),-m+n\,p,1,\frac{1}{2}(3-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$
$$\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]\text{Cot}[e+f\,x]^m\,\text{Csc}[e+f\,x]^2\,\text{Tan}[e+f\,x]^{1+n\,p}\Big)\Big/$$
$$\Big((-1+m-n\,p)\,\Big(2\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),-m+n\,p,2,\frac{1}{2}(5-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$2\,(m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),1-m+n\,p,1,\frac{1}{2}(5-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$
$$(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),-m+n\,p,1,\frac{1}{2}(3-m+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Cot}\left[\frac{1}{2}(e+f\,x)\right]^2\Big)\Big)\Big)\Big)\Big)$$

- **Problem 427: Result more than twice size of optimal antiderivative.**

$$\int \text{Cos}[c+d\,x]\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 28 leaves, 3 steps):

$$\frac{b\,\text{ArcTanh}[\text{Sin}[c+d\,x]]}{d}+\frac{(a-b)\,\text{Sin}[c+d\,x]}{d}$$

Result (type 3, 92 leaves):

$$-\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]-\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{d}+\frac{b\,\text{Log}\left[\text{Cos}\left[\frac{1}{2}(c+d\,x)\right]+\text{Sin}\left[\frac{1}{2}(c+d\,x)\right]\right]}{d}+\frac{a\,\text{Cos}[d\,x]\,\text{Sin}[c]}{d}+\frac{a\,\text{Cos}[c]\,\text{Sin}[d\,x]}{d}-\frac{b\,\text{Sin}[c+d\,x]}{d}$$

- **Problem 431: Result more than twice size of optimal antiderivative.**

$$\int \text{Sec}[c+d\,x]^6\,\left(a+b\,\text{Tan}[c+d\,x]^2\right)\,dx$$

Optimal (type 3, 68 leaves, 3 steps):

$$\frac{a\,\text{Tan}[c+d\,x]}{d}+\frac{(2\,a+b)\,\text{Tan}[c+d\,x]^3}{3\,d}+\frac{(a+2\,b)\,\text{Tan}[c+d\,x]^5}{5\,d}+\frac{b\,\text{Tan}[c+d\,x]^7}{7\,d}$$

Result (type 3, 139 leaves):

$$\frac{8\,a\,\text{Tan}[c+d\,x]}{15\,d}-\frac{8\,b\,\text{Tan}[c+d\,x]}{105\,d}+\frac{4\,a\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{15\,d}-\frac{4\,b\,\text{Sec}[c+d\,x]^2\,\text{Tan}[c+d\,x]}{105\,d}+$$
$$\frac{a\,\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{5\,d}-\frac{b\,\text{Sec}[c+d\,x]^4\,\text{Tan}[c+d\,x]}{35\,d}+\frac{b\,\text{Sec}[c+d\,x]^6\,\text{Tan}[c+d\,x]}{7\,d}$$

Problem 432: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^4 \left(a+b \operatorname{Tan}[c+d x]^2\right) dx$$

Optimal (type 3, 46 leaves, 3 steps):

$$\frac{a \operatorname{Tan}[c+d x]}{d}+\frac{(a+b) \operatorname{Tan}[c+d x]^3}{3 d}+\frac{b \operatorname{Tan}[c+d x]^5}{5 d}$$

Result (type 3, 95 leaves):

$$\frac{2 a \operatorname{Tan}[c+d x]}{3 d}-\frac{2 b \operatorname{Tan}[c+d x]}{15 d}+\frac{a \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]}{3 d}-\frac{b \operatorname{Sec}[c+d x]^2 \operatorname{Tan}[c+d x]}{15 d}+\frac{b \operatorname{Sec}[c+d x]^4 \operatorname{Tan}[c+d x]}{5 d}$$

Problem 437: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Sec}[c+d x]^3 \left(a+b \operatorname{Tan}[c+d x]^2\right)^2 dx$$

Optimal (type 3, 128 leaves, 5 steps):

$$\frac{\left(8 a^2-4 a b+b^2\right) \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{16 d}+\frac{\left(8 a^2-4 a b+b^2\right) \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{16 d}+$$
$$\frac{(8 a-3 b) b \operatorname{Sec}[c+d x]^3 \operatorname{Tan}[c+d x]}{24 d}+\frac{b \operatorname{Sec}[c+d x]^5 \left(a-(a-b) \operatorname{Sin}[c+d x]^2\right) \operatorname{Tan}[c+d x]}{6 d}$$

Result (type 3, 327 leaves):

$$\frac{\left(-8 a^2+4 a b-b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}+\frac{\left(8 a^2-4 a b+b^2\right) \operatorname{Log}\left[\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right]}{16 d}+$$
$$\frac{b^2}{48 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{2 a b-b^2}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{8 a^2-4 a b+b^2}{32 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]-\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}-$$
$$\frac{b^2}{48 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^6}+\frac{-2 a b+b^2}{16 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^4}+\frac{-8 a^2+4 a b-b^2}{32 d \left(\operatorname{Cos}\left[\frac{1}{2}(c+d x)\right]+\operatorname{Sin}\left[\frac{1}{2}(c+d x)\right]\right)^2}$$

Problem 439: Result more than twice size of optimal antiderivative.

$$\int \operatorname{Cos}[c+d x] \left(a+b \operatorname{Tan}[c+d x]^2\right)^2 dx$$

Optimal (type 3, 62 leaves, 5 steps):

$$\frac{(4 a-3 b) b \operatorname{ArcTanh}[\operatorname{Sin}[c+d x]]}{2 d}+\frac{(a-b)^2 \operatorname{Sin}[c+d x]}{d}+\frac{b^2 \operatorname{Sec}[c+d x] \operatorname{Tan}[c+d x]}{2 d}$$

Result (type 3, 146 leaves):

$$\frac{1}{4\,d}\left(-2\,(4\,a-3\,b)\,b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,(4\,a-3\,b)\,b\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+\frac{b^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{b^2}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}+4\,(a-b)^2\,\mathrm{Sin}[c+d\,x]\right)$$

- **Problem 449: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Cos}[c+d\,x]^6\,\left(a+b\,\mathrm{Tan}[c+d\,x]^2\right)^2\,dx$$

Optimal (type 3, 122 leaves, 5 steps):

$$\frac{1}{16}\,\left(5\,a^2+2\,a\,b+b^2\right)\,x+\frac{\left(5\,a^2+2\,a\,b+b^2\right)\,\mathrm{Cos}[c+d\,x]\,\mathrm{Sin}[c+d\,x]}{16\,d}+\frac{(a-b)\,(5\,a+3\,b)\,\mathrm{Cos}[c+d\,x]^3\,\mathrm{Sin}[c+d\,x]}{24\,d}+\frac{(a-b)\,\mathrm{Cos}[c+d\,x]^5\,\mathrm{Sin}[c+d\,x]\,\left(a+b\,\mathrm{Tan}[c+d\,x]^2\right)}{6\,d}$$

Result (type 3, 87 leaves):

$$\frac{1}{192\,d}\left(12\,((1-2\,i)\,a+b)\,((1+2\,i)\,a+b)\,(c+d\,x)+3\,(5\,a-b)\,(3\,a+b)\,\mathrm{Sin}[2\,(c+d\,x)]+3\,(a-b)\,(3\,a+b)\,\mathrm{Sin}[4\,(c+d\,x)]+(a-b)^2\,\mathrm{Sin}[6\,(c+d\,x)]\right)$$

- **Problem 450: Result more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Sec}[c+d\,x]^5}{a+b\,\mathrm{Tan}[c+d\,x]^2}\,dx$$

Optimal (type 3, 90 leaves, 5 steps):

$$-\frac{(2\,a-3\,b)\,\mathrm{ArcTanh}[\mathrm{Sin}[c+d\,x]]}{2\,b^2\,d}+\frac{(a-b)^{3/2}\,\mathrm{ArcTanh}\left[\frac{\sqrt{a-b}\,\mathrm{Sin}[c+d\,x]}{\sqrt{a}}\right]}{\sqrt{a}\,b^2\,d}+\frac{\mathrm{Sec}[c+d\,x]\,\mathrm{Tan}[c+d\,x]}{2\,b\,d}$$

Result (type 3, 207 leaves):

$$\frac{1}{4\,b^2\,d}\left(2\,(2\,a-3\,b)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]+2\,(-2\,a+3\,b)\,\mathrm{Log}\left[\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right]-\frac{2\,(a-b)^{3/2}\,\mathrm{Log}\left[\sqrt{a}-\sqrt{a-b}\,\mathrm{Sin}[c+d\,x]\right]}{\sqrt{a}}+\frac{2\,(a-b)^{3/2}\,\mathrm{Log}\left[\sqrt{a}+\sqrt{a-b}\,\mathrm{Sin}[c+d\,x]\right]}{\sqrt{a}}+\frac{b}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]-\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}-\frac{b}{\left(\mathrm{Cos}\left[\frac{1}{2}\,(c+d\,x)\right]+\mathrm{Sin}\left[\frac{1}{2}\,(c+d\,x)\right]\right)^2}\right)$$

Problem 451: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^3}{a+b \text{Tan}[c+d x]^2} \, dx$$

Optimal (type 3, 59 leaves, 4 steps):

$$\frac{\text{ArcTanh}[\text{Sin}[c+d x]]}{b d}-\frac{\sqrt{a-b} \, \text{ArcTanh}\left[\frac{\sqrt{a-b} \, \text{Sin}[c+d x]}{\sqrt{a}}\right]}{\sqrt{a} \, b d}$$

Result (type 3, 136 leaves):

$$\frac{1}{2 \sqrt{a} \, b d}\left(-2 \sqrt{a} \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\right.$$
$$\left.2 \sqrt{a} \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]+\sqrt{a-b} \left(\text{Log}\left[\sqrt{a}-\sqrt{a-b} \, \text{Sin}[c+d x]\right]-\text{Log}\left[\sqrt{a}+\sqrt{a-b} \, \text{Sin}[c+d x]\right]\right)\right)$$

Problem 462: Result more than twice size of optimal antiderivative.

$$\int \frac{\text{Sec}[c+d x]^7}{\left(a+b \text{Tan}[c+d x]^2\right)^2} \, dx$$

Optimal (type 3, 167 leaves, 6 steps):

$$-\frac{(4 a-5 b) \, \text{ArcTanh}[\text{Sin}[c+d x]]}{2 b^3 d}+\frac{(a-b)^{3/2} (4 a+b) \, \text{ArcTanh}\left[\frac{\sqrt{a-b} \, \text{Sin}[c+d x]}{\sqrt{a}}\right]}{2 a^{3/2} b^3 d}+$$
$$\frac{(a-b) (2 a-b) \, \text{Sin}[c+d x]}{2 a b^2 d \left(a-(a-b) \, \text{Sin}[c+d x]^2\right)}+\frac{\text{Sec}[c+d x] \, \text{Tan}[c+d x]}{2 b d \left(a-(a-b) \, \text{Sin}[c+d x]^2\right)}$$

Result (type 3, 343 leaves):

$$\frac{(4 a-5 b) \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{2 b^3 d}+\frac{(-4 a+5 b) \, \text{Log}\left[\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right]}{2 b^3 d}-$$
$$\frac{(a-b)^{3/2} (4 a+b) \, \text{Log}\left[\sqrt{a}-\sqrt{a-b} \, \text{Sin}[c+d x]\right]}{4 a^{3/2} b^3 d}+\frac{\left(4 a^3-7 a^2 b+2 a b^2+b^3\right) \text{Log}\left[\sqrt{a}+\sqrt{a-b} \, \text{Sin}[c+d x]\right]}{4 a^{3/2} \sqrt{a-b} \, b^3 d}+$$
$$\frac{1}{4 b^2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]-\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}-\frac{1}{4 b^2 d \left(\text{Cos}\left[\frac{1}{2} (c+d x)\right]+\text{Sin}\left[\frac{1}{2} (c+d x)\right]\right)^2}+\frac{-a^2 \text{Sin}[c+d x]+2 a b \, \text{Sin}[c+d x]-b^2 \text{Sin}[c+d x]}{a b^2 d \, (-a-b-a \, \text{Cos}[2 (c+d x)]+b \, \text{Cos}[2 (c+d x)])}$$

Problem 475: Result more than twice size of optimal antiderivative.

$$\int (d \, \text{Sec}[e+f x])^m \left(a+b \text{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 108 leaves, 3 steps):

$$\frac{1}{f}\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]$$

$$(d\,\text{Sec}[e+f x])^m\left(\text{Sec}[e+f x]^2\right)^{-m/2}\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\left(1+\frac{b\,\text{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 2033 leaves):

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right](d\,\text{Sec}[e+f x])^m\left(\text{Sec}[e+f x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^{2p}\right)\Big/$$

$$\left(f\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\right.\right.\right.$$

$$\left.\left.a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)$$

$$\left(\left(6\,a\,b\,p\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\text{Tan}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^{-1+p}\right)\Big/\right.$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)+$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(\text{Sec}[e+f x]^2\right)^{m/2}\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)+$$

$$\left(6\,a\left(-1+\frac{m}{2}\right)\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(\text{Sec}[e+f x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f x]^2\left(a+b\,\text{Tan}[e+f x]^2\right)^p\right)\Big/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)+$$

$$\left(3\,a\left(\text{Sec}[e+f x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f x]\left(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{3\,a}-\right.\right.$$

$$\frac{2}{3}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg)\Bigg/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)-$$

$$\Bigg(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\left(\text{Sec}[e+f x]^2\right)^{-1+\frac{m}{2}}\text{Tan}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p$$

$$\Bigg(2\,\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+$$

$$a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\Bigg)\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+$$

$$3\,a\,\Bigg(\frac{2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]}{3\,a}-$$

$$\frac{2}{3}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$\text{Tan}[e+f x]^2\,\Bigg(2\,b\,p\,\Bigg(-\frac{1}{5\,a}6\,b\,(1-p)\,\text{AppellF1}\left[\frac{5}{2},1-\frac{m}{2},2-p,\frac{7}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{6}{5}\left(1-\frac{m}{2}\right)\text{AppellF1}\left[\frac{5}{2},2-\frac{m}{2},1-p,\frac{7}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+$$

$$a\,(-2+m)\,\Bigg(\frac{1}{5\,a}6\,b\,p\,\text{AppellF1}\left[\frac{5}{2},2-\frac{m}{2},1-p,\frac{7}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{6}{5}\left(2-\frac{m}{2}\right)\text{AppellF1}\left[\frac{5}{2},3-\frac{m}{2},-p,\frac{7}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\left(3\,a\,\text{AppellF1}\left[\frac{1}{2},1-\frac{m}{2},-p,\frac{3}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2},1-\frac{m}{2},1-p,\frac{5}{2},-\text{Tan}[e+f x]^2,\right.\right.\right.$$

$$\left.\left.\left.-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]+a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2},2-\frac{m}{2},-p,\frac{5}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\right]\right)\text{Tan}[e+f x]^2\right)^2\Bigg)\Bigg)$$

Problem 481: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \text{Cos}[e+f x]^2 \left(b \left(c \text{Tan}[e+f x]\right)^n\right)^p \, dx$$

Optimal (type 5, 61 leaves, 3 steps):

$$\frac{\text{Hypergeometric2F1}\left[2, \frac{1}{2}(1+n p), \frac{1}{2}(3+n p), -\text{Tan}[e+f x]^2\right] \text{Tan}[e+f x] \left(b \left(c \text{Tan}[e+f x]\right)^n\right)^p}{f (1+n p)}$$

Result (type 6, 8042 leaves):

$$\left(2^{1+n p} (3+n p) \text{Tan}\left[\frac{1}{2}(e+f x)\right] \left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}\right.$$

$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/\right.$$

$$\left((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] -\right.$$

$$2 \left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] -\right.$$

$$\left.\left. n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) -$$

$$\left(4 \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \Big/$$

$$\left((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$2 \left(-2 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left.\left. n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(4 \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/$$

$$\left((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$2 \left(-3 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left.\left.\left. n p \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)$$

$$\text{Tan}[e+f x]^{-n p}\,(b\,(c\,\text{Tan}[e+f x])^n)^p\,\Bigg(\frac{1}{4}\text{Cos}[2\,(e+f x)]^3\,\text{Tan}[e+f x]^{n p}-\frac{1}{4}\,i\,\text{Sin}[2\,(e+f x)]\,\text{Tan}[e+f x]^{n p}+$$

$$\frac{1}{2}\text{Sin}[2\,(e+f x)]^2\,\text{Tan}[e+f x]^{n p}+\frac{1}{4}\,i\,\text{Sin}[2\,(e+f x)]^3\,\text{Tan}[e+f x]^{n p}+$$

$$\text{Cos}[2\,(e+f x)]^2\left(\frac{1}{2}\text{Tan}[e+f x]^{n p}+\frac{1}{4}\,i\,\text{Sin}[2\,(e+f x)]\,\text{Tan}[e+f x]^{n p}\right)+$$

$$\text{Cos}[2\,(e+f x)]\left(\frac{1}{4}\text{Tan}[e+f x]^{n p}+\frac{1}{4}\text{Sin}[2\,(e+f x)]^2\,\text{Tan}[e+f x]^{n p}\right)\Bigg)\Bigg)\Bigg/\Bigg(f\,(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3$$

$$\Bigg(-\frac{1}{(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4}\,3\times 2^{1+n p}\,(3+n p)\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,1,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\Bigg)\Bigg/$$

$$\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,1,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,2,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,1,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,2,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\Bigg)\Bigg/$$

$$\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,2,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,3,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,2,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,3,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\Bigg/$$

$$\Bigg((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,3,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,4,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,3,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{(1+n\,p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3}2^{n\,p}(3+n\,p)\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{n\,p}$$

$$\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,1,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,1,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-$$

$$2\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,2,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-n\,p$$

$$\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,1,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)-$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,2,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$2\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,3,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p$$

$$\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,2,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)+$$

$$\Bigg(4\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,3,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),n\,p,3,\frac{1}{2}(3+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$2\Bigg(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),n\,p,4,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p$$

$$\text{AppellF1}\left[\frac{1}{2}(3+n\,p),1+n\,p,3,\frac{1}{2}(5+n\,p),\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$\frac{1}{(1+n\,p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3}2^{1+n\,p}\,n\,p\,(3+n\,p)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-1+n\,p}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}\right)$$

$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\right/$$

$$\left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] -\right.$$

$$2 \left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) -$$

$$\left(4\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/$$

$$\left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$2 \left(-2\, \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(4\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/$$

$$\left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 3, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$2 \left(-3\, \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 4, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) +$$

$$\frac{1}{(1+n p) \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3}\, 2^{1+n p} (3+n p)\, \text{Tan}\left[\frac{1}{2}(e+f x)\right] \left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\left(\left(2\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right.\right.$$

$$\left.\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right/ \left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] -\right.$$

$$2 \left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) +$$

$$\left(\left(-\frac{1}{3+n\,p}(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,1,\,1+\frac{1}{2}(3+n\,p),\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$

$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-n\,p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(4\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(4\left(-\frac{1}{3+n\,p}2\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,2,\,1+\frac{1}{2}(3+n\,p),\right.$$

$$\left.\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\right.$$

$$\left.\left.\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$

$$\left(4\left(-\frac{1}{3+n\,p}3\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,3,\right.$$

$$1+\frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 3,\ \frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2\Bigg(-3\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\ n p,\ 4,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p$$

$$\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\ 1+n p,\ 3,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)-$$

$$\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 1,\ \frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2$$

$$\Bigg(-2\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\ n p,\ 2,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\right.$$

$$\left.1+n p,\ 1,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)$$

$$\Bigg(-\frac{1}{3+n p}(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p),\ n p,\ 2,\ 1+\frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p(1+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+n p),\ 1+n p,\ 1,\ 1+\frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)-2\,\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg(-\frac{1}{5+n p}2(3+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$\left.n p,\ 3,\ 1+\frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}$$

$$n p(3+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(3+n p),\ 1+n p,\ 2,\ 1+\frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]-n p\Bigg(-\frac{1}{5+n p}(3+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(3+n p),\ 1+n p,\ 2,\ 1+\frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)(3+n p)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$\left.2+n p,\ 1,\ 1+\frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+f x)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((3+n p)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+n p),\ n p,\ 1,\ \frac{1}{2}(3+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2\Bigg(\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\ n p,\ 2,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$n p\,\mathrm{AppellF1}\left[\frac{1}{2}(3+n p),\ 1+n p,\ 1,\ \frac{1}{2}(5+n p),\ \mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\ -\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\Bigg)\mathrm{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Bigg)^2+$$

$$\Big(4\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)$$

$$\Big(2\,\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+$$

$$(3+n\,p)\,\Big(-\frac{1}{3+n\,p}2\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,2,$$

$$1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\Big(-2\,\Big(-\frac{1}{5+n\,p}3\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}n\,p\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),$$

$$1+n\,p,\,3,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$n\,p\,\Big(-\frac{1}{5+n\,p}2\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}(1+n\,p)\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,2+n\,p,\,2,$$

$$1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2-$$

$$\Big(4\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\Big(2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+$$

$$(3+n p)\,\Big(-\frac{1}{3+n p}3\,(1+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(1+n p),\,n p,\,4,\,1+\frac{1}{2}\,(3+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]+\frac{1}{3+n p}n p\,(1+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(1+n p),\,1+n p,\,3,$$

$$1+\frac{1}{2}\,(3+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\Big(-3\,\Big(-\frac{1}{5+n p}4\,(3+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n p),\,n p,\,5,\,1+\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]+\frac{1}{5+n p}n p\,(3+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n p),$$

$$1+n p,\,4,\,1+\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]\Big)+$$

$$n p\,\Big(-\frac{1}{5+n p}3\,(3+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n p),\,1+n p,\,4,\,1+\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]+\frac{1}{5+n p}(1+n p)\,(3+n p)\,\text{AppellF1}\Big[1+\frac{1}{2}\,(3+n p),\,2+n p,\,3,$$

$$1+\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}\,(e+f x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n p),\,n p,\,3,\,\frac{1}{2}\,(3+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]+$$

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n p),\,n p,\,4,\,\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]+$$

$$n p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n p),\,1+n p,\,3,\,\frac{1}{2}\,(5+n p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}\,(e+f x)\Big]^2\Big)^2\Big)\Big)$$

- **Problem 484: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[e+f x]\,(b\,(c\,\text{Tan}[e+f x])^n)^p\,dx$$

Optimal (type 5, 79 leaves, 2 steps):

$$\frac{1}{f\,(1+n p)}\left(\text{Cos}[e+f x]^2\right)^{\frac{n p}{2}}\,\text{Hypergeometric2F1}\Big[\frac{n p}{2},\,\frac{1}{2}\,(1+n p),\,\frac{1}{2}\,(3+n p),\,\text{Sin}[e+f x]^2\Big]\,\text{Sin}[e+f x]\,(b\,(c\,\text{Tan}[e+f x])^n)^p$$

Result (type 6, 5006 leaves):

$$\Big(2\,(3+n p)\,\text{Cos}\Big[\frac{1}{2}\,(e+f x)\Big]^3\,\text{Cos}[e+f x]\,\text{Sin}\Big[\frac{1}{2}\,(e+f x)\Big]$$

$$\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-$$

$$2\,\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-$$

$$n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)$$

$$\text{Tan}[e+f\,x]^{n\,p}\,\big(b\,(c\,\text{Tan}[e+f\,x])^n\big)^p\Bigg)\Big/\Bigg(f\,(1+n\,p)\,\Bigg(\frac{1}{1+n\,p}(3+n\,p)\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^4$$

$$\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-$$

$$2\,\Bigg(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-$$

$$n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)+$$

$$\Bigg(2\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+$$

$$2\,\Bigg(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p$$

$$\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\Bigg)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\Bigg)\Bigg)\,\text{Tan}[e+f\,x]^{n\,p}-$$

$$\frac{1}{1+n\,p}3\,(3+n\,p)\,\text{Cos}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Sin}\left[\frac{1}{2}(e+f\,x)\right]^2\,\Bigg(-\Bigg(\Bigg(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\Big/\Big((3+np)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,1,\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$

$$2\Big(\mathrm{AppellF1}\left[\frac{1}{2}(3+np),np,2,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$

$$np\,\mathrm{AppellF1}\left[\frac{1}{2}(3+np),1+np,1,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)+$$

$$\Big(2\,\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,2,\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\Big/$$

$$\Big((3+np)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,2,\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+$$

$$2\Big(-2\,\mathrm{AppellF1}\left[\frac{1}{2}(3+np),np,3,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+np$$

$$\mathrm{AppellF1}\left[\frac{1}{2}(3+np),1+np,2,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)\,\mathrm{Tan}[e+fx]^{np}+$$

$$\frac{1}{1+np}2(3+np)\,\mathrm{Cos}\left[\frac{1}{2}(e+fx)\right]^3\mathrm{Sin}\left[\frac{1}{2}(e+fx)\right]\Big(-\Big(\Big(\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,1,\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.$$

$$\left.-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big/\Big((3+np)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,1,\frac{1}{2}(3+np),\right.$$

$$\left.\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2\Big(\mathrm{AppellF1}\left[\frac{1}{2}(3+np),np,2,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$

$$np\,\mathrm{AppellF1}\left[\frac{1}{2}(3+np),1+np,1,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)\Big)-$$

$$\Big(\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\Big(-\frac{1}{3+np}(1+np)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+np),np,2,1+\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+np}np(1+np)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+np),1+np,1,\right.$$

$$\left.1+\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\mathrm{Sec}\left[\frac{1}{2}(e+fx)\right]^2\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big)\Big/$$

$$\Big((3+np)\,\mathrm{AppellF1}\left[\frac{1}{2}(1+np),np,1,\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-$$

$$2\Big(\mathrm{AppellF1}\left[\frac{1}{2}(3+np),np,2,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-np$$

$$\mathrm{AppellF1}\left[\frac{1}{2}(3+np),1+np,1,\frac{1}{2}(5+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\Big)\,\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big)+$$

$$\Big(2\Big(-\frac{1}{3+np}2(1+np)\,\mathrm{AppellF1}\left[1+\frac{1}{2}(1+np),np,3,1+\frac{1}{2}(3+np),\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\mathrm{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p} n p (1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 2,\right.$$

$$\left.1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]))) \Big/$$

$$((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+$$

$$2 \left(-2 \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+n p\right.$$

$$\left.\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2)+$$

$$(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$(-2 (\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p \text{AppellF1}\left[\frac{1}{2}(3+n p),\right.$$

$$\left.1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)$$

$$\left(-\frac{1}{3+n p}(1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 2, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p} n p (1+n p) \text{AppellF1}\left[1+\frac{1}{2}(1+n p), 1+n p, 1, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$

$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)-2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left(-\frac{1}{5+n p} 2 (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.\right.$$

$$\left.n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}$$

$$n p (3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 2, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]-n p \left(-\frac{1}{5+n p}(3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 2, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)(3+n p) \text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$\left.2+n p, 1, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]))))) \Big/$$

$$((3+n p) \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$2 (\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2-$$

$$\Big(2\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\Big(2\,\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+$$

$$(3+n\,p)\,\Big(-\frac{1}{3+n\,p}2\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,2,$$

$$1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\Big(-2\,\Big(-\frac{1}{5+n\,p}3\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}n\,p\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),$$

$$1+n\,p,\,3,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$n\,p\,\Big(-\frac{1}{5+n\,p}2\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}(1+n\,p)\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,2+n\,p,\,2,$$

$$1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-2\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2\Big)$$

$$\text{Tan}[e+f\,x]^{n\,p}+\frac{1}{1+n\,p}2\,n\,p\,(3+n\,p)\,\text{Cos}\Big[\frac{1}{2}(e+f\,x)\Big]^3\,\text{Sec}[e+f\,x]^2\,\text{Sin}\Big[\frac{1}{2}(e+f\,x)\Big]$$

$$\Big(-\Big(\Big(\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)\Big/$$

$$\left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p\, \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) + \left(2\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \Big/ \left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2\left(-2\, \text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p\, \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right) \text{Tan}[e+f x]^{-1+n p}\right)\right)$$

- **Problem 485: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \text{Cos}[e+f x]^3\, (b\, (c\, \text{Tan}[e+f x])^n)^p\, dx$$

Optimal (type 5, 82 leaves, 2 steps):

$$\frac{1}{f\,(1+n p)} \left(\text{Cos}[e+f x]^2\right)^{\frac{n p}{2}} \text{Hypergeometric2F1}\left[\frac{1}{2}(-2+n p), \frac{1}{2}(1+n p), \frac{1}{2}(3+n p), \text{Sin}[e+f x]^2\right] \text{Sin}[e+f x]\, (b\, (c\, \text{Tan}[e+f x])^n)^p$$

Result (type 6, 10 987 leaves):

$$-\left(\left(2^{1+n p}\,(3+n p)\, \text{Tan}\left[\frac{1}{2}(e+f x)\right] \left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p} \left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\right) \Big/ \left((3+n p)\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 1, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p\, \text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right) - \left(6\, \text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right) \Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)\Big/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)-$$
$$\left(8\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\Big/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,n\,p,\,5,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)$$
$$\text{Tan}[e+f\,x]^{-n\,p}\,\left(b\,\left(c\,\text{Tan}[e+f\,x]\right)^n\right)^p\,\left(-\frac{1}{8}\,\mathrm{i}\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\right.$$
$$\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{1}{8}\,\text{Sin}[2\,(e+f\,x)]^3\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\text{Cos}[3\,(e+f\,x)]$$
$$\left(\frac{1}{8}\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Tan}[e+f\,x]^{n\,p}-\frac{1}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]^3\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2\,(e+f\,x)]^3\,\left(\frac{1}{8}\,\text{Cos}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{1}{8}\,\mathrm{i}\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}\right)+$$
$$\text{Cos}[2\,(e+f\,x)]^2\,\left(-\frac{3}{8}\,\mathrm{i}\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\right.$$
$$\left.\text{Cos}[3\,(e+f\,x)]\,\left(\frac{3}{8}\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}\right)\right)+\text{Cos}[2\,(e+f\,x)]$$
$$\left(-\frac{3}{8}\,\mathrm{i}\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{4}\,\text{Sin}[2\,(e+f\,x)]\,\text{Sin}[3\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{8}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]^2\,\text{Sin}[3\,(e+f\,x)]\right.$$

$$\text{Tan}[e+f\,x]^{n\,p}+\text{Cos}[3\,(e+f\,x)]\,\Big(\frac{3}{8}\,\text{Tan}[e+f\,x]^{n\,p}+\frac{3}{4}\,\mathrm{i}\,\text{Sin}[2\,(e+f\,x)]\,\text{Tan}[e+f\,x]^{n\,p}-\frac{3}{8}\,\text{Sin}[2\,(e+f\,x)]^{2}\,\text{Tan}[e+f\,x]^{n\,p}\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Bigg(f\,(1+n\,p)\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big)^{4}\,\Bigg(\frac{1}{(1+n\,p)\,\Big(1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^{2}\Big)^{5}}\,2^{3+n\,p}\,(3+n\,p)\,\text{Sec}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}$$

$$\Bigg(-\frac{\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]}{-1+\text{Tan}\big[\frac{1}{2}\,(e+f\,x)\big]^{2}}\Bigg)^{n\,p}\,\Bigg(\Bigg(\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]$$

$$\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big)^{3}\Bigg)\Big/\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]-$$

$$2\,\Bigg(\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]-$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Bigg)-$$

$$\Bigg(6\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big)^{2}\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]+$$

$$2\,\Bigg(-2\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Bigg)+$$

$$\Bigg(12\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big)\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]+$$

$$2\,\Bigg(-3\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}\,(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}\,(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\Bigg)\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Bigg)-$$

$$\Bigg(8\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]\Bigg)\Big/$$

$$\Bigg((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}\,(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}\,(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2},\,-\text{Tan}\Big[\frac{1}{2}\,(e+f\,x)\Big]^{2}\Big]+$$

$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,5,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)-$$
$$\frac{1}{(1+n\,p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^4}\,2^{n\,p}\,(3+n\,p)\,\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{n\,p}$$
$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3\right)\right/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$
$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$
$$\left(6\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)\right/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$
$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\right/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$
$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$
$$\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\right/$$
$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,5,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)-$$

$$\frac{1}{(1+n\,p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^4}\,2^{1+n\,p}\,n\,p\,(3+n\,p)\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}\right)^{-1+n\,p}$$

$$\left(\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2}{\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2}-\frac{\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2}{2\left(-1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)}\right)$$

$$\left(\left(\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^3\right)\Big/\right.$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,1,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$

$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,1,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(6\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(8\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,4,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,5,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$\left.\left.n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,4,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)-$$

$$\frac{1}{(1+n p)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^4}2^{1+n p}(3+n p)\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]\left(-\frac{\text{Tan}\left[\frac{1}{2}(e+f x)\right]}{-1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2}\right)^{n p}$$

$$\left(\left(3\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right.\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right)\Big/\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$\left.\left.n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,1,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)+$$

$$\left(\left(-\frac{1}{3+n p}(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),n p,2,1+\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),1+n p,1,1+\frac{1}{2}(3+n p),\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\right)\Big/$$

$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,1,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p),n p,2,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$\left.\left.n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),1+n p,1,\frac{1}{2}(5+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right.$$

$$\left.\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\Big/\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),n p,2,\frac{1}{2}(3+n p),\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(6\left(-\frac{1}{3+n\,p}2\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,2,\,1+\frac{1}{2}(3+n\,p),\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,2,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-2\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,2,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$

$$\left(12\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)+$$

$$\left(12\left(-\frac{1}{3+n\,p}3\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n\,p),\,1+n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\right.$$

$$\left.\left.\left.\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f\,x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]\right)\left(1+\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\Big/$$

$$\left((3+n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$2\left(-3\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)-$$

$$\left(8\left(-\frac{1}{3+n p}4\,(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,n p,\,5,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p\,(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,1+n p,\,4,\right.$$
$$\left.\left.\left.1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\Big/$$
$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,4,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,5,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]+\right.$$
$$\left.\left.n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\,1+n p,\,4,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)-$$
$$\left(\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,1,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^3\right.$$
$$\left(-2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p),\,n p,\,2,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-n p\,\text{AppellF1}\left[\frac{1}{2}(3+n p),\right.\right.\right.$$
$$\left.\left.1+n p,\,1,\,\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+(3+n p)$$
$$\left(-\frac{1}{3+n p}(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,n p,\,2,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{3+n p}n p\,(1+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\,1+n p,\,1,\,1+\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.$$
$$\left.\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)-2\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\left(-\frac{1}{5+n p}2\,(3+n p)\,\text{AppellF1}\left[1+\right.\right.$$
$$\frac{1}{2}(3+n p),\,n p,\,3,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}$$
$$n p\,(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,2,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2$$
$$\text{Tan}\left[\frac{1}{2}(e+f x)\right]-n p\left(-\frac{1}{5+n p}(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\,1+n p,\,2,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]+\frac{1}{5+n p}(1+n p)\,(3+n p)\,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$
$$\left.\left.\left.\left.\left.2+n p,\,1,\,1+\frac{1}{2}(5+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$
$$\left((3+n p)\,\text{AppellF1}\left[\frac{1}{2}(1+n p),\,n p,\,1,\,\frac{1}{2}(3+n p),\,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]-\right.$$

$$2\left(\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - n p \,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 1, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2 +$$

$$\left(6 \,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \left(1+\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)^2\right.$$

$$\left(2\left(-2 \,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + n p \,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2\right.$$

$$\text{Tan}\left[\frac{1}{2}(e+f x)\right] + (3+n p)\left(-\frac{1}{3+n p} 2(1+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(1+n p), n p, 3, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{3+n p} n p (1+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(1+n p),\right.$$

$$\left.\left.1+n p, 2, 1+\frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) +$$

$$2 \,\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2 \left(-2\left(-\frac{1}{5+n p} 3(3+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(3+n p), n p, 4, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{5+n p} n p (3+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(3+n p),\right.$$

$$\left.\left.1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right) +$$

$$n p\left(-\frac{1}{5+n p} 2(3+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(3+n p), 1+n p, 3, 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right] + \frac{1}{5+n p}(1+n p)(3+n p) \,\text{AppellF1}\left[1+\frac{1}{2}(3+n p), 2+n p, 2,\right.$$

$$\left.\left.\left.\left.\left. 1+\frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] \text{Sec}\left[\frac{1}{2}(e+f x)\right]^2 \text{Tan}\left[\frac{1}{2}(e+f x)\right]\right)\right)\right)\right)\Big/$$

$$\left((3+n p) \,\text{AppellF1}\left[\frac{1}{2}(1+n p), n p, 2, \frac{1}{2}(3+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$2\left(-2 \,\text{AppellF1}\left[\frac{1}{2}(3+n p), n p, 3, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] +\right.$$

$$\left. n p \,\text{AppellF1}\left[\frac{1}{2}(3+n p), 1+n p, 2, \frac{1}{2}(5+n p), \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \text{Tan}\left[\frac{1}{2}(e+f x)\right]^2\Big)^2 -$$

$$\Big(12\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\Big(1+\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)$$

$$\Big(2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2$$

$$\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+(3+n\,p)\,\Big(-\frac{1}{3+n\,p}3\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{3+n\,p}n\,p\,(1+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+n\,p),$$

$$1+n\,p,\,3,\,1+\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\Big(-3\,\Big(-\frac{1}{5+n\,p}4\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,n\,p,\,5,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,$$

$$-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}n\,p\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),$$

$$1+n\,p,\,4,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)+$$

$$n\,p\,\Big(-\frac{1}{5+n\,p}3\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,1+n\,p,\,4,\,1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]+\frac{1}{5+n\,p}(1+n\,p)\,(3+n\,p)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+n\,p),\,2+n\,p,\,3,$$

$$1+\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]\Big)\Big)\Big)\Big)\Big)\Big/$$

$$\Big((3+n\,p)\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,3,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$2\,\Big(-3\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,3,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big)^2+$$

$$\Big(8\,\text{AppellF1}\Big[\frac{1}{2}(1+n\,p),\,n\,p,\,4,\,\frac{1}{2}(3+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]$$

$$\Big(2\,\Big(-4\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,n\,p,\,5,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]+$$

$$n\,p\,\text{AppellF1}\Big[\frac{1}{2}(3+n\,p),\,1+n\,p,\,4,\,\frac{1}{2}(5+n\,p),\,\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2,\,-\text{Tan}\Big[\frac{1}{2}(e+f\,x)\Big]^2\Big]\Big)\,\text{Sec}\Big[\frac{1}{2}(e+f\,x)\Big]^2$$

$$\text{Tan}\left[\frac{1}{2}(e+fx)\right]+(3+np)\left(-\frac{1}{3+np}4(1+np)\,\text{AppellF1}\left[1+\frac{1}{2}(1+np),np,5,1+\frac{1}{2}(3+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{3+np}np(1+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(1+np),$$
$$1+np,4,1+\frac{1}{2}(3+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)+$$
$$2\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-4\left(-\frac{1}{5+np}5(3+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3+np),np,6,1+\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$
$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+np}np(3+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+np),$$
$$1+np,5,1+\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)+$$
$$np\left(-\frac{1}{5+np}4(3+np)\,\text{AppellF1}\left[1+\frac{1}{2}(3+np),1+np,5,1+\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$
$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{5+np}(1+np)(3+np)\,\text{AppellF1}\Big[1+\frac{1}{2}(3+np),2+np,4,$$
$$1+\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\Big)\Big)\Big)\Big)\Big/$$
$$\left((3+np)\,\text{AppellF1}\left[\frac{1}{2}(1+np),np,4,\frac{1}{2}(3+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$2\left(-4\,\text{AppellF1}\left[\frac{1}{2}(3+np),np,5,\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.$$
$$\left.\left.\left.\left.np\,\text{AppellF1}\left[\frac{1}{2}(3+np),1+np,4,\frac{1}{2}(5+np),\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)\right)\right)$$

- **Problem 496: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (d\,\text{Csc}[e+fx])^m\left(b\,\text{Tan}[e+fx]^2\right)^p\,dx$$

Optimal (type 5, 98 leaves, 4 steps):

$$\frac{1}{f(1-m+2p)}\left(\text{Cos}[e+fx]^2\right)^{\frac{1}{2}+p}(d\,\text{Csc}[e+fx])^m$$
$$\text{Hypergeometric2F1}\left[\frac{1}{2}(1+2p),\frac{1}{2}(1-m+2p),\frac{1}{2}(3-m+2p),\text{Sin}[e+fx]^2\right]\text{Tan}[e+fx]\left(b\,\text{Tan}[e+fx]^2\right)^p$$

Result (type 6, 2469 leaves):

$$-\left(\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Csc}[e+fx]^{-1+m}(d\,\text{Csc}[e+fx])^m\,\text{Tan}[e+fx]^{2p}\right.\right.$$

$$\left.\left(b\,\text{Tan}[e+fx]^2\right)^p\right)\Big/\left(f(-1+m-2p)\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.$$

$$\left.\left.2p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)$$

$$\left(\left((-1+m)(-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Cos}[e+fx]\,\text{Csc}[e+fx]^m\right.\right.$$

$$\left.\text{Tan}[e+fx]^{2p}\right)\Big/\left((-1+m-2p)\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2p\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)-$$

$$\left((-3+m-2p)\,\text{Csc}[e+fx]^{-1+m}\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}(1-m)\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$\left.-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}2p\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,\right.$$

$$\left.\left.1-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\text{Tan}[e+fx]^{2p}\right)\Big/$$

$$\left((-1+m-2p)\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,2p,2-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2p\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,1+2p,1-m,\frac{5}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)\right)+$$

$$\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,2p,1-m,\frac{3}{2}-\frac{m}{2}+p,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Csc}[e+fx]^{-1+m}\right.$$

$$\left(2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,2p,\,2-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-2p\right.\right.$$

$$\left.\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1+2p,\,1-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+$$

$$(-3+m-2p)\left(-\frac{1}{\frac{3}{2}-\frac{m}{2}+p}(1-m)\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,2p,\,2-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{3}{2}-\frac{m}{2}+p}2p\left(\frac{1}{2}-\frac{m}{2}+p\right)\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2}+p,$$

$$\left.1+2p,\,1-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)+$$

$$2\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\left(-(-1+m)\left(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}(2-m)\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,\,2p,\,3-m,\,\frac{7}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\right.\right.\right.$$

$$-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\Big]\,\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{5}{2}-\frac{m}{2}+p}2p\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}+p,$$

$$\left.1+2p,\,2-m,\,\frac{7}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)-2p$$

$$\left(-\frac{1}{\frac{5}{2}-\frac{m}{2}+p}(1-m)\left(\frac{3}{2}-\frac{m}{2}+p\right)\text{AppellF1}\left[\frac{5}{2}-\frac{m}{2}+p,\,1+2p,\,2-m,\,\frac{7}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right.$$

$$\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]+\frac{1}{\frac{5}{2}-\frac{m}{2}+p}\left(\frac{3}{2}-\frac{m}{2}+p\right)(1+2p)\,\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2}+p,\,2+2p,\,1-m,$$

$$\left.\left.\left.\left.\frac{7}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Sec}\left[\frac{1}{2}(e+fx)\right]^2\text{Tan}\left[\frac{1}{2}(e+fx)\right]\right)\right)\right)\text{Tan}[e+fx]^{2p}\right)\Big/$$

$$\left((-1+m-2p)\left((-3+m-2p)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]+\right.\right.$$

$$2\left(-(-1+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,2p,\,2-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]-\right.$$

$$\left.\left.\left.2p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p,\,1+2p,\,1-m,\,\frac{5}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right)^2\right)-$$

$$\left(2(-3+m-2p)\,p\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p,\,2p,\,1-m,\,\frac{3}{2}-\frac{m}{2}+p,\,\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+fx)\right]^2\right]\text{Csc}[e+fx]^{-1+m}\right.$$

$$\left.\operatorname{Sec}[e+f x]^2 \operatorname{Tan}[e+f x]^{-1+2 p}\right) \Big/ \left((-1+m-2 p) \left((-3+m-2 p) \operatorname{AppellF1}\left[\frac{1}{2}-\frac{m}{2}+p, 2 p, 1-m, \frac{3}{2}-\frac{m}{2}+p, \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] + 2 \left(-(-1+m) \operatorname{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, 2 p, 2-m, \frac{5}{2}-\frac{m}{2}+p, \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right] - 2 p \operatorname{AppellF1}\left[\frac{3}{2}-\frac{m}{2}+p, 1+2 p, 1-m, \frac{5}{2}-\frac{m}{2}+p, \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2, -\operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right]\right) \operatorname{Tan}\left[\frac{1}{2}(e+f x)\right]^2\right)\right)\right)\right)$$

Problem 497: Result more than twice size of optimal antiderivative.

$$\int (d \operatorname{Csc}[e+f x])^m \left(a+b \operatorname{Tan}[e+f x]^2\right)^p \, dx$$

Optimal (type 6, 127 leaves, 4 steps):

$$\frac{1}{f(1-m)} \operatorname{AppellF1}\left[\frac{1-m}{2}, 1-\frac{m}{2}, -p, \frac{3-m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] (d \operatorname{Csc}[e+f x])^m \left(\operatorname{Sec}[e+f x]^2\right)^{-m/2} \operatorname{Tan}[e+f x] \left(a+b \operatorname{Tan}[e+f x]^2\right)^p \left(1+\frac{b \operatorname{Tan}[e+f x]^2}{a}\right)^{-p}$$

Result (type 6, 3031 leaves):

$$-\left(\left(a (-3+m) \operatorname{AppellF1}\left[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] \operatorname{Cos}[e+f x] (d \operatorname{Csc}[e+f x])^m \left(\operatorname{Cot}[e+f x] \sqrt{\operatorname{Sec}[e+f x]^2}\right)^m \operatorname{Sin}[e+f x] \left(a+b \operatorname{Tan}[e+f x]^2\right)^{2 p}\right) \Big/ \left(f (-1+m) \left(a (-3+m) \operatorname{AppellF1}\left[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] - \left(2 b p \operatorname{AppellF1}\left[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] + a (-2+m) \operatorname{AppellF1}\left[\frac{3}{2}-\frac{m}{2}, 2-\frac{m}{2}, -p, \frac{5}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right]\right) \operatorname{Tan}[e+f x]^2\right) \left(-\left(2 a b (-3+m) p \operatorname{AppellF1}\left[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] \left(\operatorname{Cot}[e+f x] \sqrt{\operatorname{Sec}[e+f x]^2}\right)^m \operatorname{Tan}[e+f x]^2 \left(a+b \operatorname{Tan}[e+f x]^2\right)^{-1+p}\right) \Big/ \left((-1+m) \left(a (-3+m) \operatorname{AppellF1}\left[\frac{1}{2}-\frac{m}{2}, 1-\frac{m}{2}, -p, \frac{3}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] - \left(2 b p \operatorname{AppellF1}\left[\frac{3}{2}-\frac{m}{2}, 1-\frac{m}{2}, 1-p, \frac{5}{2}-\frac{m}{2}, -\operatorname{Tan}[e+f x]^2, -\frac{b \operatorname{Tan}[e+f x]^2}{a}\right] + \right.\right.\right.\right.$$

$$a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\Big)\Big)-$$

$$\Bigg(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]^2\left(\text{Cot}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]^2}\right)^m$$

$$\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/\Bigg((-1+m)\,\Bigg(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)$$

$$\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\Bigg)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)-$$

$$\Bigg(a\,(-3+m)\,m\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Cos}[e+f\,x]\left(\text{Cot}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]^2}\right)^{-1+m}$$

$$\left(\sqrt{\text{Sec}[e+f\,x]^2}-\text{Csc}[e+f\,x]^2\sqrt{\text{Sec}[e+f\,x]^2}\right)\text{Sin}[e+f\,x]\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((-1+m)\,\Bigg(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)$$

$$\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\Bigg)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)+$$

$$\Bigg(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\left(\text{Cot}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]^2}\right)^m$$

$$\text{Sin}[e+f\,x]^2\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/\Bigg((-1+m)\,\Bigg(a\,(-3+m)\,\text{AppellF1}\left[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]-$$

$$\Bigg(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+a\,(-2+m)$$

$$\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\Bigg)\text{Tan}[e+f\,x]^2\Bigg)\Bigg)-$$

$$\Bigg(a\,(-3+m)\,\text{Cos}[e+f\,x]\left(\text{Cot}[e+f\,x]\sqrt{\text{Sec}[e+f\,x]^2}\right)^m\text{Sin}[e+f\,x]\left(1\Big/\left(a\left(\frac{3}{2}-\frac{m}{2}\right)\right)2\,b\left(\frac{1}{2}-\frac{m}{2}\right)p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},\right.\right.$$

$$1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\Bigg]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]-1\Big/\left(\frac{3}{2}-\frac{m}{2}\right)2\left(\frac{1}{2}-\frac{m}{2}\right)\left(1-\frac{m}{2}\right)$$

$$\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f\,x]^2,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]\Bigg)\left(a+b\,\text{Tan}[e+f\,x]^2\right)^p\Bigg)\Big/$$

$$\Bigg((-1+m)\Bigg(a(-3+m)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-\Big(2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+a(-2+m)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\text{Tan}[e+f x]^2\Bigg)+$$

$$\Bigg(a(-3+m)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Cos}[e+f x]\left(\text{Cot}[e+f x]\sqrt{\text{Sec}[e+f x]^2}\right)^m$$

$$\text{Sin}[e+f x]\left(a+b\,\text{Tan}[e+f x]^2\right)^p\Bigg(-2\Big(2\,b\,p\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]+a$$

$$(-2+m)\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\Big)\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]+a(-3+m)$$

$$\Bigg(\frac{1}{a\left(\frac{3}{2}-\frac{m}{2}\right)}2\,b\left(\frac{1}{2}-\frac{m}{2}\right)p\,\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},1-\frac{m}{2},1-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-$$

$$\frac{1}{\frac{3}{2}-\frac{m}{2}}2\left(\frac{1}{2}-\frac{m}{2}\right)\left(1-\frac{m}{2}\right)\text{AppellF1}\Big[\frac{3}{2}-\frac{m}{2},2-\frac{m}{2},-p,\frac{5}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)-$$

$$\text{Tan}[e+f x]^2\Bigg(2\,b\,p\Bigg(-\frac{1}{a\left(\frac{5}{2}-\frac{m}{2}\right)}2\,b\left(\frac{3}{2}-\frac{m}{2}\right)(1-p)\,\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},1-\frac{m}{2},2-p,\frac{7}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]$$

$$\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{\frac{5}{2}-\frac{m}{2}}2\left(1-\frac{m}{2}\right)\left(\frac{3}{2}-\frac{m}{2}\right)\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},2-\frac{m}{2},1-p,\frac{7}{2}-\frac{m}{2},$$

$$-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)+a(-2+m)\Bigg(\frac{1}{a\left(\frac{5}{2}-\frac{m}{2}\right)}$$

$$2\,b\left(\frac{3}{2}-\frac{m}{2}\right)p\,\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},2-\frac{m}{2},1-p,\frac{7}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]-\frac{1}{\frac{5}{2}-\frac{m}{2}}$$

$$2\left(\frac{3}{2}-\frac{m}{2}\right)\left(2-\frac{m}{2}\right)\text{AppellF1}\Big[\frac{5}{2}-\frac{m}{2},3-\frac{m}{2},-p,\frac{7}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]\text{Sec}[e+f x]^2\,\text{Tan}[e+f x]\Bigg)\Bigg)\Bigg)\Bigg)\Bigg/$$

$$\Bigg((-1+m)\Bigg(a(-3+m)\,\text{AppellF1}\Big[\frac{1}{2}-\frac{m}{2},1-\frac{m}{2},-p,\frac{3}{2}-\frac{m}{2},-\text{Tan}[e+f x]^2,-\frac{b\,\text{Tan}[e+f x]^2}{a}\Big]-$$

$$\left(2\,b\,p\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},\,1-\frac{m}{2},\,1-p,\,\frac{5}{2}-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]+\right.$$

$$\left.\left.\left.\left.\left. a\,(-2+m)\,\text{AppellF1}\left[\frac{3}{2}-\frac{m}{2},\,2-\frac{m}{2},\,-p,\,\frac{5}{2}-\frac{m}{2},\,-\text{Tan}[e+f\,x]^2,\,-\frac{b\,\text{Tan}[e+f\,x]^2}{a}\right]\right)\text{Tan}[e+f\,x]^2\right)^2\right)\right)\right)\right)$$

- **Problem 498: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int (d\,\text{Csc}[e+f\,x])^m\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p\,dx$$

Optimal (type 5, 104 leaves, 4 steps):

$$\frac{1}{f\,(1-m+n\,p)}\left(\text{Cos}[e+f\,x]^2\right)^{\frac{1}{2}(1+n\,p)}\,(d\,\text{Csc}[e+f\,x])^m$$

$$\text{Hypergeometric2F1}\left[\frac{1}{2}\,(1+n\,p),\,\frac{1}{2}\,(1-m+n\,p),\,\frac{1}{2}\,(3-m+n\,p),\,\text{Sin}[e+f\,x]^2\right]\,\text{Tan}[e+f\,x]\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p$$

Result (type 6, 2597 leaves):

$$-\left(\left(\left((-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right.\right.\right.$$

$$\left.\text{Csc}[e+f\,x]^{-1+m}\,(d\,\text{Csc}[e+f\,x])^m\,\text{Tan}[e+f\,x]^{n\,p}\,(b\,(c\,\text{Tan}[e+f\,x])^n)^p\right)\Big/$$

$$\left(f\,(-1+m-n\,p)\,\left((-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,n\,p,\,2-m,\,\frac{1}{2}\,(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,1+n\,p,\,1-m,\,\frac{1}{2}\,(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)$$

$$\left(\left((-1+m)\,(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right.\right.$$

$$\left.\text{Cos}[e+f\,x]\,\text{Csc}[e+f\,x]^m\,\text{Tan}[e+f\,x]^{n\,p}\right)\Big/$$

$$\left((-1+m-n\,p)\,\left((-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}\,(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]-\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,n\,p,\,2-m,\,\frac{1}{2}\,(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]+n\,p\right.$$

$$\left.\left.\left.\text{AppellF1}\left[\frac{1}{2}\,(3-m+n\,p),\,1+n\,p,\,1-m,\,\frac{1}{2}\,(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}\,(e+f\,x)\right]^2\right)\right)-$$

$$\left((-3+m-n\,p)\,\text{Csc}[e+f\,x]^{-1+m}\left(-\frac{1}{3-m+n\,p}\,(1-m)\,(1-m+n\,p)\,\text{AppellF1}\left[1+\frac{1}{2}\,(1-m+n\,p),\,n\,p,\,2-m,\,1+\frac{1}{2}\,(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}\right.\right.\right.\right.$$

$$(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3-m+n p}n p\,(1-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(1-m+n p),$$

$$1+n p, 1-m, 1+\frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big)\,\mathrm{Tan}[e+f x]^{n p}\Big)\Big/$$

$$\Big((-1+m-n p)\,\Big((-3+m-n p)\,\mathrm{AppellF1}\Big[\frac{1}{2}(1-m+n p), n p, 1-m, \frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$

$$2\,\Big((-1+m)\,\mathrm{AppellF1}\Big[\frac{1}{2}(3-m+n p), n p, 2-m, \frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+n p$$

$$\mathrm{AppellF1}\Big[\frac{1}{2}(3-m+n p), 1+n p, 1-m, \frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big)\Big)+$$

$$\Big((-3+m-n p)\,\mathrm{AppellF1}\Big[\frac{1}{2}(1-m+n p), n p, 1-m, \frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Csc}[e+f x]^{-1+m}$$

$$\Big(-2\,\Big((-1+m)\,\mathrm{AppellF1}\Big[\frac{1}{2}(3-m+n p), n p, 2-m, \frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]+n p\,\mathrm{AppellF1}\Big[$$

$$\frac{1}{2}(3-m+n p), 1+n p, 1-m, \frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\Big)\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]+$$

$$(-3+m-n p)\,\Big(-\frac{1}{3-m+n p}(1-m)\,(1-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(1-m+n p), n p, 2-m, 1+\frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{3-m+n p}n p\,(1-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(1-m+n p), 1+n p, 1-m,$$

$$1+\frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)-2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2$$

$$\Big((-1+m)\,\Big(-\frac{1}{5-m+n p}(2-m)\,(3-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3-m+n p), n p, 3-m, 1+\frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2,$$

$$-\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{5-m+n p}n p\,(3-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3-m+n p), 1+n p,$$

$$2-m, 1+\frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)+n p\,\Big(-\frac{1}{5-m+n p}$$

$$(1-m)\,(3-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3-m+n p), 1+n p, 2-m, 1+\frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]$$

$$\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]+\frac{1}{5-m+n p}(1+n p)\,(3-m+n p)\,\mathrm{AppellF1}\Big[1+\frac{1}{2}(3-m+n p), 2+n p, 1-m,$$

$$1+\frac{1}{2}(5-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]\,\mathrm{Sec}\Big[\frac{1}{2}(e+f x)\Big]^2\,\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]\Big)\Big)\Big)\Big)\,\mathrm{Tan}[e+f x]^{n p}\Big)\Big/$$

$$\Big((-1+m-n p)\,\Big((-3+m-n p)\,\mathrm{AppellF1}\Big[\frac{1}{2}(1-m+n p), n p, 1-m, \frac{1}{2}(3-m+n p), \mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2, -\mathrm{Tan}\Big[\frac{1}{2}(e+f x)\Big]^2\Big]-$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,n\,p,\,2-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+\right.$$

$$\left.\left.\left.n\,p\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,1+n\,p,\,1-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)^2\right)-$$

$$\left(n\,p\,(-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right.$$

$$\left.\text{Csc}[e+f\,x]^{-1+m}\,\text{Sec}[e+f\,x]^2\,\text{Tan}[e+f\,x]^{-1+n\,p}\right)\Big/$$

$$\left((-1+m-n\,p)\left((-3+m-n\,p)\,\text{AppellF1}\left[\frac{1}{2}(1-m+n\,p),\,n\,p,\,1-m,\,\frac{1}{2}(3-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]-\right.\right.$$

$$2\left((-1+m)\,\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,n\,p,\,2-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]+n\,p\right.$$

$$\left.\left.\left.\left.\text{AppellF1}\left[\frac{1}{2}(3-m+n\,p),\,1+n\,p,\,1-m,\,\frac{1}{2}(5-m+n\,p),\,\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2,\,-\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right]\right)\text{Tan}\left[\frac{1}{2}(e+f\,x)\right]^2\right)\right)\right)\right)\right)$$

Test results for the 51 problems in "4.3.9 trig^m (a+b tan^n+c tan^(2 n))^p.m"

- **Problem 1: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[d+e\,x]^5\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\,dx$$

Optimal (type 3, 975 leaves, 21 steps):

$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$

$$\text{ArcTan}\Big[\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\sqrt{a^2+b^2-2\,a\,c+c^2}\;\text{Tan}[d+e\,x]\right)\Big/$$

$$\left.\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)+\frac{b\,\text{ArcTanh}\left[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2\sqrt{c}\;e}-\frac{b\left(b^2-4\,a\,c\right)\text{ArcTanh}\left[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{16\,c^{5/2}\,e}+$$

$$\frac{b\left(7\,b^2-12\,a\,c\right)\left(b^2-4\,a\,c\right)\text{ArcTanh}\left[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{256\,c^{9/2}\,e}-$$

$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$

$$\text{ArcTanh}\Big[\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)+b\sqrt{a^2+b^2-2\,a\,c+c^2}\;\text{Tan}[d+e\,x]\right)\Big/$$

$$\left.\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)+\frac{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{e}+\frac{b\left(b+2\,c\,\text{Tan}[d+e\,x]\right)\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{8\,c^2\,e}-$$

$$\frac{b\left(7\,b^2-12\,a\,c\right)\left(b+2\,c\,\text{Tan}[d+e\,x]\right)\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{128\,c^4\,e}-$$

$$\frac{\left(a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2\right)^{3/2}}{3\,c\,e}+$$

$$\frac{\text{Tan}[d+e\,x]^2\left(a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2\right)^{3/2}}{5\,c\,e}+$$

$$\frac{\left(35\,b^2-32\,a\,c-42\,b\,c\,\text{Tan}[d+e\,x]\right)\left(a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2\right)^{3/2}}{240\,c^3\,e}$$

Result (type 3, 2599 leaves) :

$$\frac{1}{e}\sqrt{\frac{a+c+a\,\text{Cos}[2\,(d+e\,x)]-c\,\text{Cos}[2\,(d+e\,x)]+b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}$$

$$\left(\frac{-105\,b^4+460\,a\,b^2\,c-256\,a^2\,c^2+296\,b^2\,c^2-768\,a\,c^3+2944\,c^4}{1920\,c^4}+\frac{\left(-7\,b^2+16\,a\,c-176\,c^2\right)\,\mathrm{Sec}[d+e\,x]^2}{240\,c^2}+\frac{1}{5}\,\mathrm{Sec}[d+e\,x]^4+\right.$$

$$\left.\frac{\mathrm{Sec}[d+e\,x]\,\left(35\,b^3\,\mathrm{Sin}[d+e\,x]-116\,a\,b\,c\,\mathrm{Sin}[d+e\,x]-104\,b\,c^2\,\mathrm{Sin}[d+e\,x]\right)}{960\,c^3}+\frac{b\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]}{40\,c}\right)+$$

$$\left(\left(-\frac{1}{2}\,\sqrt{a-i\,b-c}\;\mathrm{Log}\Big[\left(2\,a-2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(-i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\Big/\right.\right.$$

$$\left(128\,(a-i\,b-c)^{3/2}\,c^4\,(i+\mathrm{Tan}[d+e\,x])\right)\Big]-\frac{1}{2}\,\sqrt{a+i\,b-c}\;\mathrm{Log}\Big[\Big(2\,a+2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(i+\mathrm{Tan}[d+e\,x])+$$

$$2\,\sqrt{a+i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\Big)\Big/\left(128\,(a+i\,b-c)^{3/2}\,c^4\,(-i+\mathrm{Tan}[d+e\,x])\right)\Big]+\frac{1}{256\,c^{9/2}}$$

$$\left.b\,\left(7\,b^4-8\,b^2\,c\,(5\,a+2\,c)+16\,c^2\,\left(3\,a^2+4\,a\,c+8\,c^2\right)\right)\,\mathrm{Log}\Big[b+2\,c\,\mathrm{Tan}[d+e\,x]+2\,\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\Big]\right)$$

$$\left(-\frac{7\,b^5\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{128\,c^4\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}+\right.$$

$$\frac{5\,a\,b^3\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{16\,c^3\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}-$$

$$\frac{3\,a^2\,b\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{8\,c^2\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}+$$

$$\frac{b^3\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{8\,c^2\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}-$$

$$\frac{a\,b\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{2\,c\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}+$$

$$\frac{b\,\mathrm{Cos}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}-$$

$$\frac{a\,\mathrm{Sin}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}+$$

$$\left.\left.\frac{c\,\mathrm{Sin}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}\right)\right)\Big/$$

$$\Bigg(e\,\Bigg(\Bigg(b\,\left(7\,b^4-8\,b^2\,c\,(5\,a+2\,c)+16\,c^2\,\left(3\,a^2+4\,a\,c+8\,c^2\right)\right)$$

$$\left.\left.\left(2\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}\right)\right)\right)\Big/$$

$$\left(256\,c^{9/2}\,\left(b+2\,c\,\mathrm{Tan}[d+e\,x]+2\,\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\right)-\Bigg(64\,(a-i\,b-c)^2\,c^4\,(i+\mathrm{Tan}[d+e\,x])$$

$$\left(\frac{b\,\mathrm{Sec}[d+e\,x]^2-2\,i\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{a-i\,b-c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}}{128\,(a-i\,b-c)^{3/2}\,c^4\,(i+\mathrm{Tan}[d+e\,x])}-\left(\mathrm{Sec}[d+e\,x]^2\,\left(2\,a-2\,i\,c\,\mathrm{Tan}[d+e\,x]+\right.\right.\right.$$

$$\left.\left.\left.\left.b\,(-i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\right)\Big/\left(128\,(a-i\,b-c)^{3/2}\,c^4\,(i+\mathrm{Tan}[d+e\,x])^2\right)\right)\Bigg)\Big/$$

$$\left(2\,a-2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(-i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)-$$

$$\Bigg(64\,(a+i\,b-c)^2\,c^4\,(-i+\mathrm{Tan}[d+e\,x])\,\Bigg(\frac{b\,\mathrm{Sec}[d+e\,x]^2+2\,i\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{a+i\,b-c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}}{128\,(a+i\,b-c)^{3/2}\,c^4\,(-i+\mathrm{Tan}[d+e\,x])}-$$

$$\left(\text{Sec}[d+e\,x]^2\left(2\,a+2\,\mathrm{i}\,c\,\text{Tan}[d+e\,x]+b\,(\mathrm{i}+\text{Tan}[d+e\,x])+2\,\sqrt{a+\mathrm{i}\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)\right)\Big/$$

$$\left(128\,(a+\mathrm{i}\,b-c)^{3/2}\,c^4\,(-\mathrm{i}+\text{Tan}[d+e\,x])^2\right)\Bigg)\Bigg)\Big/$$

$$\left(2\,a+2\,\mathrm{i}\,c\,\text{Tan}[d+e\,x]+b\,(\mathrm{i}+\text{Tan}[d+e\,x])+2\,\sqrt{a+\mathrm{i}\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)\Bigg)\Bigg)$$

- **Problem 2: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \text{Tan}[d+e\,x]^4\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\,\mathrm{d}x$$

Optimal (type 3, 889 leaves, 19 steps):

$$-\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\text{ArcTan}\Big[\Big(b\sqrt{a^2+b^2-2ac+c^2}-\Big(b^2+(a-c)\Big(a-c+\sqrt{a^2+b^2-2ac+c^2}\Big)\Big)\text{Tan}[d+ex]\Big)\Big/$$
$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)+\frac{\sqrt{c}\,\text{ArcTanh}\Big[\frac{b+2c\,\text{Tan}[d+ex]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}\Big]}{e}+\frac{\left(b^2-4ac\right)\text{ArcTanh}\Big[\frac{b+2c\,\text{Tan}[d+ex]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}\Big]}{8c^{3/2}e}-$$
$$\frac{\left(b^2-4ac\right)\left(5b^2-4ac\right)\text{ArcTanh}\Big[\frac{b+2c\,\text{Tan}[d+ex]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}\Big]}{128c^{7/2}e}-$$
$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\text{ArcTanh}\Big[\Big(b\sqrt{a^2+b^2-2ac+c^2}+\Big(b^2+(a-c)\Big(a-c-\sqrt{a^2+b^2-2ac+c^2}\Big)\Big)\text{Tan}[d+ex]\Big)\Big/$$
$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)-\frac{(b+2c\,\text{Tan}[d+ex])\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}{4ce}+$$
$$\frac{\left(5b^2-4ac\right)(b+2c\,\text{Tan}[d+ex])\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}{64c^3e}-$$
$$\frac{5b\left(a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2\right)^{3/2}}{24c^2e}+$$
$$\frac{\text{Tan}[d+ex]\left(a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2\right)^{3/2}}{4ce}$$

Result (type 3, 2537 leaves) :

$$\frac{1}{e}\sqrt{\frac{a+c+a\,\text{Cos}[2(d+ex)]-c\,\text{Cos}[2(d+ex)]+b\,\text{Sin}[2(d+ex)]}{1+\text{Cos}[2(d+ex)]}}\left(\frac{b\left(15b^2-52ac-56c^2\right)}{192c^3}+\right.$$
$$\left.\frac{b\,\text{Sec}[d+ex]^2}{24c}+\frac{\text{Sec}[d+ex]\left(-5b^2\,\text{Sin}[d+ex]+12ac\,\text{Sin}[d+ex]-72c^2\,\text{Sin}[d+ex]\right)}{96c^2}+\frac{1}{4}\text{Sec}[d+ex]^2\,\text{Tan}[d+ex]\right)+$$

$$\Bigg(\Bigg(-64\,i\sqrt{a-i\,b-c}\,\text{Log}\Big[-\Big(i\,\Big(2\,a-2\,i\,c\,\text{Tan}[d+e\,x]+b\,(-i+\text{Tan}[d+e\,x])+2\sqrt{a-i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Big/$$

$$\left(64\,(a-i\,b-c)^{3/2}\,c^3\,(i+\text{Tan}[d+e\,x])\right)\Big]+$$

$$64\,i\sqrt{a+i\,b-c}\,\text{Log}\Big[\Big(i\,\Big(2\,a+2\,i\,c\,\text{Tan}[d+e\,x]+b\,(i+\text{Tan}[d+e\,x])+2\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Big/$$

$$\left(64\,(a+i\,b-c)^{3/2}\,c^3\,(-i+\text{Tan}[d+e\,x])\right)\Big]+\frac{1}{c^{7/2}}$$

$$\left(-5\,b^4+8\,b^2\,c\,(3\,a+2\,c)-16\,c^2\,\left(a^2+4\,a\,c-8\,c^2\right)\right)\text{Log}\Big[b+2\,c\,\text{Tan}[d+e\,x]+2\sqrt{c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big]\Bigg)$$

$$\Bigg(\frac{5\,b^4\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{64\,c^3\,(-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)])}-$$

$$\frac{3\,a\,b^2\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{8\,c^2\,(-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)])}+$$

$$\frac{a^2\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{4\,c\,(-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)])}-$$

$$\frac{b^2\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{4\,c\,(-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)])}-$$

$$\frac{c\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)]}-$$

$$\frac{a\,\text{Cos}[2\,(d+e\,x)]\sqrt{\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\text{Cos}[2\,(d+e\,x)]+c\,\text{Cos}[2\,(d+e\,x)]-b\,\text{Sin}[2\,(d+e\,x)]}+$$

$$\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}-$$

$$\left.\left.\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}\right)\right)\Big/$$

$$\left(e\left(\left(\left(-5\,b^4+8\,b^2\,c\,(3\,a+2\,c)-16\,c^2\,\left(a^2+4\,a\,c-8\,c^2\right)\right)\right.\right.\right.$$

$$\left.\left.\left(2\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}\right)\right)\right)\Big/$$

$$\left(c^{7/2}\left(b+2\,c\,\mathrm{Tan}[d+e\,x]+2\,\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\right)+\left(4096\,(a-i\,b-c)^2\,c^3\,(i+\mathrm{Tan}[d+e\,x])\right.$$

$$\left(-\frac{i\left(b\,\mathrm{Sec}[d+e\,x]^2-2\,i\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{a-i\,b-c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}\right)}{64\,(a-i\,b-c)^{3/2}\,c^3\,(i+\mathrm{Tan}[d+e\,x])}+\left(i\,\mathrm{Sec}[d+e\,x]^2\left(2\,a-2\,i\,c\,\mathrm{Tan}[d+e\,x]+\right.\right.\right.$$

$$\left.\left.\left.\left.b\,(-i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\right)\Big/\left(64\,(a-i\,b-c)^{3/2}\,c^3\,(i+\mathrm{Tan}[d+e\,x])^2\right)\right)\right)\Big/$$

$$\left(2\,a-2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(-i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)+$$

$$\left(4096\,(a+i\,b-c)^2\,c^3\,(-i+\mathrm{Tan}[d+e\,x])\left(\frac{i\left(b\,\mathrm{Sec}[d+e\,x]^2+2\,i\,c\,\mathrm{Sec}[d+e\,x]^2+\frac{\sqrt{a+i\,b-c}\,\left(c\,\mathrm{Sec}[d+e\,x]^2\,\mathrm{Tan}[d+e\,x]+\mathrm{Sec}[d+e\,x]^2\,(b+c\,\mathrm{Tan}[d+e\,x])\right)}{\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}\right)}{64\,(a+i\,b-c)^{3/2}\,c^3\,(-i+\mathrm{Tan}[d+e\,x])}-\right.\right.$$

$$\left(i\,\mathrm{Sec}[d+e\,x]^2\left(2\,a+2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a+i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\right)\Big/$$

$$\left(64\,(a+i\,b-c)^{3/2}\,c^3\,(-i+\mathrm{Tan}[d+e\,x])^2\right)\Bigg)\Bigg)\Big/$$

$$\left(2\,a+2\,i\,c\,\mathrm{Tan}[d+e\,x]+b\,(i+\mathrm{Tan}[d+e\,x])+2\,\sqrt{a+i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right)\Bigg)\Bigg)$$

- **Problem 3: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[d+e\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}\,dx$$

Optimal (type 3, 748 leaves, 16 steps):

$$-\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$
$$\mathrm{ArcTan}\Big[\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\,\sqrt{a^2+b^2-2\,a\,c+c^2}\,\mathrm{Tan}[d+e\,x]\right)\Big/$$
$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}\right)\Big]\Bigg)\Big/$$
$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)-\frac{b\,\mathrm{ArcTanh}\Big[\frac{b+2\,c\,\mathrm{Tan}[d+e\,x]}{2\,\sqrt{c}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}\Big]}{2\,\sqrt{c}\,e}+\frac{b\,\left(b^2-4\,a\,c\right)\,\mathrm{ArcTanh}\Big[\frac{b+2\,c\,\mathrm{Tan}[d+e\,x]}{2\,\sqrt{c}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}\Big]}{16\,c^{5/2}\,e}+$$
$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$
$$\mathrm{ArcTanh}\Big[\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)+b\,\sqrt{a^2+b^2-2\,a\,c+c^2}\,\mathrm{Tan}[d+e\,x]\right)\Big/$$
$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}\right)\Big]\Bigg)\Big/$$
$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)-\frac{\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}{e}-\frac{b\,(b+2\,c\,\mathrm{Tan}[d+e\,x])\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}{8\,c^2\,e}+$$
$$\frac{\left(a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2\right)^{3/2}}{3\,c\,e}$$

Result (type 3, 1960 leaves):

$$\frac{\sqrt{\frac{a+c+a\,\mathrm{Cos}[2\,(d+e\,x)]-c\,\mathrm{Cos}[2\,(d+e\,x)]+b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}\,\left(-\frac{3\,b^2-8\,a\,c+32\,c^2}{24\,c^2}+\frac{1}{3}\,\mathrm{Sec}[d+e\,x]^2+\frac{b\,\mathrm{Tan}[d+e\,x]}{12\,c}\right)}{e}+$$

$$\Bigg(\Bigg(8\,\sqrt{a+\mathrm{i}\,b-c}\;\mathrm{Log}\Big[\frac{-2\,a-\mathrm{i}\,b-(b+2\,\mathrm{i}\,c)\,\mathrm{Tan}[d+e\,x]-2\,\sqrt{a+\mathrm{i}\,b-c}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}{8\,(a+\mathrm{i}\,b-c)^{3/2}\,c^2\,(-\mathrm{i}+\mathrm{Tan}[d+e\,x])}\Big]+$$

$$8\,\sqrt{a-\mathrm{i}\,b-c}\;\mathrm{Log}\Big[\Big(-2\,a+\mathrm{i}\,b-b\,\mathrm{Tan}[d+e\,x]+2\,\mathrm{i}\,c\,\mathrm{Tan}[d+e\,x]-2\,\sqrt{a-\mathrm{i}\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\Big)\Big/$$

$$\Big(8\,(a-\mathrm{i}\,b-c)^{3/2}\,c^2\,(\mathrm{i}+\mathrm{Tan}[d+e\,x])\Big)\Big]+\frac{b\,\big(b^2-4\,c\,(a+2\,c)\big)\,\mathrm{Log}\Big[b+2\,c\,\mathrm{Tan}[d+e\,x]+2\,\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\Big]}{c^{5/2}}\Bigg)$$

$$\Bigg(-\frac{b^3\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{8\,c^2\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}+$$

$$\frac{a\,b\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{2\,c\,(-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)])}-$$

$$\frac{b\,\mathrm{Cos}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}+$$

$$\frac{a\,\mathrm{Sin}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}-$$

$$\frac{c\,\mathrm{Sin}[2\,(d+e\,x)]\,\sqrt{\frac{a}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{a\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}-\frac{c\,\mathrm{Cos}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}+\frac{b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}}{-a-c-a\,\mathrm{Cos}[2\,(d+e\,x)]+c\,\mathrm{Cos}[2\,(d+e\,x)]-b\,\mathrm{Sin}[2\,(d+e\,x)]}\Bigg)\Bigg)\Big/$$

$$\left(e\left(\frac{b\left(b^2-4c(a+2c)\right)\left(2c\,\mathrm{Sec}[d+ex]^2+\frac{\sqrt{c}\,\left(c\,\mathrm{Sec}[d+ex]^2\,\mathrm{Tan}[d+ex]+\mathrm{Sec}[d+ex]^2\,(b+c\,\mathrm{Tan}[d+ex])\right)}{\sqrt{a+\mathrm{Tan}[d+ex]\,(b+c\,\mathrm{Tan}[d+ex])}}\right)}{c^{5/2}\left(b+2c\,\mathrm{Tan}[d+ex]+2\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+ex]\,(b+c\,\mathrm{Tan}[d+ex])}\right)}+\right.\right.$$

$$\left(64\,(a+\mathrm{i}\,b-c)^2\,c^2\,(-\mathrm{i}+\mathrm{Tan}[d+ex])\left(\frac{-(b+2\,\mathrm{i}\,c)\,\mathrm{Sec}[d+ex]^2-\frac{\sqrt{a+\mathrm{i}\,b-c}\,\left(b\,\mathrm{Sec}[d+ex]^2+2c\,\mathrm{Sec}[d+ex]^2\,\mathrm{Tan}[d+ex]\right)}{\sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}}}{8\,(a+\mathrm{i}\,b-c)^{3/2}\,c^2\,(-\mathrm{i}+\mathrm{Tan}[d+ex])}-\left(\mathrm{Sec}[d+ex]^2\left(-2a-\mathrm{i}\,b-\right.\right.\right.\right.$$

$$\left.\left.\left.\left.(b+2\,\mathrm{i}\,c)\,\mathrm{Tan}[d+ex]-2\sqrt{a+\mathrm{i}\,b-c}\,\sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)\right)\Big/\left(8\,(a+\mathrm{i}\,b-c)^{3/2}\,c^2\,(-\mathrm{i}+\mathrm{Tan}[d+ex])^2\right)\right)\right)\Big/$$

$$\left(-2a-\mathrm{i}\,b-(b+2\,\mathrm{i}\,c)\,\mathrm{Tan}[d+ex]-2\sqrt{a+\mathrm{i}\,b-c}\,\sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)+\left(64\,(a-\mathrm{i}\,b-c)^2\,c^2\,(\mathrm{i}+\mathrm{Tan}[d+ex])\right.$$

$$\left(\frac{-b\,\mathrm{Sec}[d+ex]^2+2\,\mathrm{i}\,c\,\mathrm{Sec}[d+ex]^2-\frac{\sqrt{a-\mathrm{i}\,b-c}\,\left(c\,\mathrm{Sec}[d+ex]^2\,\mathrm{Tan}[d+ex]+\mathrm{Sec}[d+ex]^2\,(b+c\,\mathrm{Tan}[d+ex])\right)}{\sqrt{a+\mathrm{Tan}[d+ex]\,(b+c\,\mathrm{Tan}[d+ex])}}}{8\,(a-\mathrm{i}\,b-c)^{3/2}\,c^2\,(\mathrm{i}+\mathrm{Tan}[d+ex])}-\left(\mathrm{Sec}[d+ex]^2\left(-2a+\mathrm{i}\,b-b\,\mathrm{Tan}[d+ex]+\right.\right.\right.$$

$$\left.\left.\left.2\,\mathrm{i}\,c\,\mathrm{Tan}[d+ex]-2\sqrt{a-\mathrm{i}\,b-c}\,\sqrt{a+\mathrm{Tan}[d+ex]\,(b+c\,\mathrm{Tan}[d+ex])}\right)\right)\Big/\left(8\,(a-\mathrm{i}\,b-c)^{3/2}\,c^2\,(\mathrm{i}+\mathrm{Tan}[d+ex])^2\right)\right)\Big/$$

$$\left.\left.\left(-2a+\mathrm{i}\,b-b\,\mathrm{Tan}[d+ex]+2\,\mathrm{i}\,c\,\mathrm{Tan}[d+ex]-2\sqrt{a-\mathrm{i}\,b-c}\,\sqrt{a+\mathrm{Tan}[d+ex]\,(b+c\,\mathrm{Tan}[d+ex])}\right)\right)\right)$$

- **Problem 4: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \mathrm{Tan}[d+ex]^2\,\sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\,dx$$

Optimal (type 3, 676 leaves, 10 steps):

$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$

$$\text{ArcTan}\Big[\Big(b\sqrt{a^2+b^2-2ac+c^2}-\left(a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+e x]\Big)\Big/$$

$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)-\frac{\left(b^2-4(a-2c)c\right)\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{8c^{3/2}e}+$$

$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$

$$\text{ArcTanh}\Big[\Big(b\sqrt{a^2+b^2-2ac+c^2}+\left(a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+e x]\Big)\Big/$$

$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)+\frac{(b+2c\,\text{Tan}[d+e x])\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}{4ce}$$

Result (type 3, 1958 leaves) :

$$\frac{\sqrt{\frac{a+c+a\,\text{Cos}[2(d+e x)]-c\,\text{Cos}[2(d+e x)]+b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}\left(\frac{b}{4c}+\frac{1}{2}\text{Tan}[d+e x]\right)}{e}+$$

$$\Bigg(\Bigg(4\,i\sqrt{a-i\,b-c}\,\text{Log}\Big[\Big(2\,i\,a+b+i\,b\,\text{Tan}[d+e x]+2c\,\text{Tan}[d+e x]+2\,i\sqrt{a-i\,b-c}\sqrt{a+\text{Tan}[d+e x](b+c\,\text{Tan}[d+e x])}\Big)\Big/$$

$$\left(4(a-i\,b-c)^{3/2}c\,(i+\text{Tan}[d+e x])\right)\Big]-$$

$$4\,i\sqrt{a+i\,b-c}\,\text{Log}\Big[\Big(-2\,i\,a+b-i\,b\,\text{Tan}[d+e x]+2c\,\text{Tan}[d+e x]-2\,i\sqrt{a+i\,b-c}\sqrt{a+\text{Tan}[d+e x](b+c\,\text{Tan}[d+e x])}\Big)\Big/$$

$$\left(4(a+i\,b-c)^{3/2}c\,(-i+\text{Tan}[d+e x])\right)\Big]-\frac{\left(b^2-4ac+8c^2\right)\text{Log}\left[b+2c\,\text{Tan}[d+e x]+2\sqrt{c}\sqrt{a+\text{Tan}[d+e x](b+c\,\text{Tan}[d+e x])}\right]}{c^{3/2}}\Bigg)$$

$$\left(\frac{b^2\sqrt{\frac{a}{1+\text{Cos}[2(d+e x)]}+\frac{c}{1+\text{Cos}[2(d+e x)]}+\frac{a\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}-\frac{c\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}+\frac{b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{4c\,(-a-c-a\,\text{Cos}[2(d+e x)]+c\,\text{Cos}[2(d+e x)]-b\,\text{Sin}[2(d+e x)])}+\right.$$

$$\frac{c\sqrt{\frac{a}{1+\text{Cos}[2(d+e x)]}+\frac{c}{1+\text{Cos}[2(d+e x)]}+\frac{a\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}-\frac{c\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}+\frac{b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{-a-c-a\,\text{Cos}[2(d+e x)]+c\,\text{Cos}[2(d+e x)]-b\,\text{Sin}[2(d+e x)]}+$$

$$\frac{a\,\text{Cos}[2(d+e x)]\sqrt{\frac{a}{1+\text{Cos}[2(d+e x)]}+\frac{c}{1+\text{Cos}[2(d+e x)]}+\frac{a\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}-\frac{c\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}+\frac{b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{-a-c-a\,\text{Cos}[2(d+e x)]+c\,\text{Cos}[2(d+e x)]-b\,\text{Sin}[2(d+e x)]}-$$

$$\frac{c\,\text{Cos}[2(d+e x)]\sqrt{\frac{a}{1+\text{Cos}[2(d+e x)]}+\frac{c}{1+\text{Cos}[2(d+e x)]}+\frac{a\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}-\frac{c\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}+\frac{b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{-a-c-a\,\text{Cos}[2(d+e x)]+c\,\text{Cos}[2(d+e x)]-b\,\text{Sin}[2(d+e x)]}+$$

$$\left.\left.\frac{b\,\text{Sin}[2(d+e x)]\sqrt{\frac{a}{1+\text{Cos}[2(d+e x)]}+\frac{c}{1+\text{Cos}[2(d+e x)]}+\frac{a\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}-\frac{c\,\text{Cos}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}+\frac{b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{-a-c-a\,\text{Cos}[2(d+e x)]+c\,\text{Cos}[2(d+e x)]-b\,\text{Sin}[2(d+e x)]}\right)\right)\Big/$$

$$\left(e\left(-\frac{\left(b^2-4ac+8c^2\right)\left(2c\,\text{Sec}[d+e x]^2+\frac{\sqrt{c}\,\left(c\,\text{Sec}[d+e x]^2\,\text{Tan}[d+e x]+\text{Sec}[d+e x]^2\,(b+c\,\text{Tan}[d+e x])\right)}{\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}\right)}{c^{3/2}\left(b+2c\,\text{Tan}[d+e x]+2\sqrt{c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)}+\left(16\,\text{i}\,(a-\text{i}\,b-c)^2\,c\,(\text{i}+\text{Tan}[d+e x])\right.\right.\right.$$

$$\left(\frac{\text{i}\,b\,\text{Sec}[d+e x]^2+2c\,\text{Sec}[d+e x]^2+\frac{\text{i}\sqrt{a-\text{i}\,b-c}\,\left(c\,\text{Sec}[d+e x]^2\,\text{Tan}[d+e x]+\text{Sec}[d+e x]^2\,(b+c\,\text{Tan}[d+e x])\right)}{\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}}{4\,(a-\text{i}\,b-c)^{3/2}\,c\,(\text{i}+\text{Tan}[d+e x])}-\left(\text{Sec}[d+e x]^2\left(2\,\text{i}\,a+b+\text{i}\,b\,\text{Tan}[d+e x]+\right.\right.\right.$$

$$\left.\left.\left.\left.2c\,\text{Tan}[d+e x]+2\,\text{i}\sqrt{a-\text{i}\,b-c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)\right)\Big/\left(4\,(a-\text{i}\,b-c)^{3/2}\,c\,(\text{i}+\text{Tan}[d+e x])^2\right)\right)\right)\Big/$$

$$\left(2\,\text{i}\,a+b+\text{i}\,b\,\text{Tan}[d+e x]+2c\,\text{Tan}[d+e x]+2\,\text{i}\sqrt{a-\text{i}\,b-c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)-$$

$$\left(16\,i\,(a+i\,b-c)^2\,c\,(-i+\text{Tan}[d+e\,x])\left(\frac{-i\,b\,\text{Sec}[d+e\,x]^2+2\,c\,\text{Sec}[d+e\,x]^2-\frac{i\,\sqrt{a+i\,b-c}\,\left(c\,\text{Sec}[d+e\,x]^2\,\text{Tan}[d+e\,x]+\text{Sec}[d+e\,x]^2\,(b+c\,\text{Tan}[d+e\,x])\right)}{\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}}}{4\,(a+i\,b-c)^{3/2}\,c\,(-i+\text{Tan}[d+e\,x])}-\right.\right.$$

$$\left(\text{Sec}[d+e\,x]^2\left(-2\,i\,a+b-i\,b\,\text{Tan}[d+e\,x]+2\,c\,\text{Tan}[d+e\,x]-2\,i\,\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)\right)\Big/$$

$$\left.\left.\left(4\,(a+i\,b-c)^{3/2}\,c\,(-i+\text{Tan}[d+e\,x])^2\right)\right)\right)\Big/$$

$$\left.\left.\left(-2\,i\,a+b-i\,b\,\text{Tan}[d+e\,x]+2\,c\,\text{Tan}[d+e\,x]-2\,i\,\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)\right)\right)$$

■ Problem 5: Result unnecessarily involves imaginary or complex numbers.

$$\int \text{Tan}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\,dx$$

Optimal (type 3, 601 leaves, 10 steps):

$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$

$$\text{ArcTan}\Big[\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\,\sqrt{a^2+b^2-2\,a\,c+c^2}\,\text{Tan}[d+e\,x]\right)\Big/$$

$$\left.\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\,e\right)+\frac{b\,\text{ArcTanh}\Big[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\,\sqrt{c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\Big]}{2\,\sqrt{c}\,e}-$$

$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$

$$\text{ArcTanh}\Big[\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)+b\,\sqrt{a^2+b^2-2\,a\,c+c^2}\,\text{Tan}[d+e\,x]\right)\Big/$$

$$\left.\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\,e\right)+\frac{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{e}$$

Result (type 3, 333 leaves):

$$\frac{1}{2 e}\left(-\sqrt{a-i b-c}\, \text{Log}\left[\frac{2 a-2 i c \,\text{Tan}[d+e x]+b\, (-i+\text{Tan}[d+e x])+2 \sqrt{a-i b-c}\, \sqrt{a+\text{Tan}[d+e x]}\, (b+c \,\text{Tan}[d+e x])}{(a-i b-c)^{3/2}\, (i+\text{Tan}[d+e x])}\right]-\sqrt{a+i b-c}\, \text{Log}\left[\frac{2 a+2 i c \,\text{Tan}[d+e x]+b\, (i+\text{Tan}[d+e x])+2 \sqrt{a+i b-c}\, \sqrt{a+\text{Tan}[d+e x]}\, (b+c \,\text{Tan}[d+e x])}{(a+i b-c)^{3/2}\, (-i+\text{Tan}[d+e x])}\right]+\frac{b \,\text{Log}\left[b+2 c \,\text{Tan}[d+e x]+2 \sqrt{c}\, \sqrt{a+\text{Tan}[d+e x]}\, (b+c \,\text{Tan}[d+e x])\right]}{\sqrt{c}}\right)+\frac{\sqrt{\frac{a+c+a \,\text{Cos}[2 (d+e x)]-c \,\text{Cos}[2 (d+e x)]+b \,\text{Sin}[2 (d+e x)]}{1+\text{Cos}[2 (d+e x)]}}}{e}$$

Problem 6: Result unnecessarily involves imaginary or complex numbers.

$$\int \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}\, dx$$

Optimal (type 3, 574 leaves, 9 steps):

$$-\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2 a c+c^2}\right)-a\left(2 c-\sqrt{a^2+b^2-2 a c+c^2}\right)}\; \text{ArcTan}\left[\left(b \sqrt{a^2+b^2-2 a c+c^2}-\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2 a c+c^2}\right)\right) \text{Tan}[d+e x]\right)\Big/\left(\sqrt{2}\, \left(a^2+b^2-2 a c+c^2\right)^{1/4} \sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2 a c+c^2}\right)-a\left(2 c-\sqrt{a^2+b^2-2 a c+c^2}\right)}\, \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}\right)\right]\right)\Big/\left(\sqrt{2}\, \left(a^2+b^2-2 a c+c^2\right)^{1/4} e\right)+\frac{\sqrt{c}\, \text{ArcTanh}\left[\frac{b+2 c \,\text{Tan}[d+e x]}{2 \sqrt{c}\, \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}}\right]}{e}-\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2 a c+c^2}\right)-a\left(2 c+\sqrt{a^2+b^2-2 a c+c^2}\right)}\; \text{ArcTanh}\left[\left(b \sqrt{a^2+b^2-2 a c+c^2}+\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2 a c+c^2}\right)\right) \text{Tan}[d+e x]\right)\Big/\left(\sqrt{2}\, \left(a^2+b^2-2 a c+c^2\right)^{1/4} \sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2 a c+c^2}\right)-a\left(2 c+\sqrt{a^2+b^2-2 a c+c^2}\right)}\, \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}\right)\right]\right)\Big/\left(\sqrt{2}\, \left(a^2+b^2-2 a c+c^2\right)^{1/4} e\right)$$

Result (type 3, 282 leaves):

$$\frac{1}{2e}\left(-i\sqrt{a-ib-c}\ \mathrm{Log}\left[-\frac{2i\left(2a-ib+(b-2ic)\,\mathrm{Tan}[d+ex]+2\sqrt{a-ib-c}\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)}{(a-ib-c)^{3/2}\,(i+\mathrm{Tan}[d+ex])}\right]+\right.$$

$$i\sqrt{a+ib-c}\ \mathrm{Log}\left[\frac{2i\left(2a+ib+(b+2ic)\,\mathrm{Tan}[d+ex]+2\sqrt{a+ib-c}\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)}{(a+ib-c)^{3/2}\,(-i+\mathrm{Tan}[d+ex])}\right]+$$

$$\left.2\sqrt{c}\ \mathrm{Log}\left[b+2c\,\mathrm{Tan}[d+ex]+2\sqrt{c}\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right]\right)$$

- **Problem 7: Result unnecessarily involves complex numbers and more than twice size of optimal antiderivative.**

$$\int \mathrm{Cot}[d+ex]\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\ dx$$

Optimal (type 3, 571 leaves, 18 steps):

$$-\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\mathrm{ArcTan}\left[\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)-b\sqrt{a^2+b^2-2ac+c^2}\ \mathrm{Tan}[d+ex]\right)\right/$$
$$\left.\left.\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)-\frac{\sqrt{a}\ \mathrm{ArcTanh}\left[\frac{2a+b\,\mathrm{Tan}[d+ex]}{2\sqrt{a}\ \sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}}\right]}{e}+$$
$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\mathrm{ArcTanh}\left[\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)+b\sqrt{a^2+b^2-2ac+c^2}\ \mathrm{Tan}[d+ex]\right)\right/$$
$$\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\left.\left.\left.\sqrt{a+b\,\mathrm{Tan}[d+ex]+c\,\mathrm{Tan}[d+ex]^2}\right)\right]\right)\Big/\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)$$

Result (type 3, 1193 leaves):

$$\left(\mathrm{Cot}[d+ex]\ \left(2\sqrt{a}\ \mathrm{Log}[\mathrm{Tan}[d+ex]]-2\sqrt{a}\ \mathrm{Log}\left[2a+b\,\mathrm{Tan}[d+ex]+2\sqrt{a}\ \sqrt{a+\mathrm{Tan}[d+ex]\ (b+c\,\mathrm{Tan}[d+ex])}\right]+\right.\right.$$

$$\sqrt{a-i\,b-c}\;\text{Log}\Big[\Big(-4\,a+2\,i\,b-2\,b\,\text{Tan}[d+e\,x]+4\,i\,c\,\text{Tan}[d+e\,x]-4\,\sqrt{a-i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big/$$

$$\Big((a-i\,b-c)^{3/2}\,(i+\text{Tan}[d+e\,x])\Big)\Big]+$$

$$\sqrt{a+i\,b-c}\;\text{Log}\Big[-\Big(2\,\Big(2\,a+2\,i\,c\,\text{Tan}[d+e\,x]+b\,(i+\text{Tan}[d+e\,x])+2\,\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Big/$$

$$\Big((a+i\,b-c)^{3/2}\,(-i+\text{Tan}[d+e\,x])\Big)\Big]\Big)$$

$$\sqrt{\left(\frac{a}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{c}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{a\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}-\frac{c\,\text{Cos}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}+\frac{b\,\text{Sin}[2\,(d+e\,x)]}{1+\text{Cos}[2\,(d+e\,x)]}\right)}\Bigg/$$

$$\Bigg(e\,\Bigg(2\,\sqrt{a}\,\text{Csc}[d+e\,x]\,\text{Sec}[d+e\,x]-\frac{2\,\sqrt{a}\,\left(b\,\text{Sec}[d+e\,x]^2+\frac{\sqrt{a}\,(c\,\text{Sec}[d+e\,x]^2\,\text{Tan}[d+e\,x]+\text{Sec}[d+e\,x]^2\,(b+c\,\text{Tan}[d+e\,x]))}{\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}}\right)}{2\,a+b\,\text{Tan}[d+e\,x]+2\,\sqrt{a}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}}+$$

$$\Bigg((a-i\,b-c)^2\,(i+\text{Tan}[d+e\,x])\,\Bigg(\frac{-2\,b\,\text{Sec}[d+e\,x]^2+4\,i\,c\,\text{Sec}[d+e\,x]^2-\frac{2\,\sqrt{a-i\,b-c}\,(c\,\text{Sec}[d+e\,x]^2\,\text{Tan}[d+e\,x]+\text{Sec}[d+e\,x]^2\,(b+c\,\text{Tan}[d+e\,x]))}{\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}}}{(a-i\,b-c)^{3/2}\,(i+\text{Tan}[d+e\,x])}-$$

$$\Big(\text{Sec}[d+e\,x]^2\,\Big(-4\,a+2\,i\,b-2\,b\,\text{Tan}[d+e\,x]+4\,i\,c\,\text{Tan}[d+e\,x]-4\,\sqrt{a-i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Big/$$

$$\Big((a-i\,b-c)^{3/2}\,(i+\text{Tan}[d+e\,x])^2\Big)\Bigg)\Bigg)\Bigg/$$

$$\Big(-4\,a+2\,i\,b-2\,b\,\text{Tan}[d+e\,x]+4\,i\,c\,\text{Tan}[d+e\,x]-4\,\sqrt{a-i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)-$$

$$\Bigg((a+i\,b-c)^2\,(-i+\text{Tan}[d+e\,x])\,\Bigg(-\frac{2\,\left(b\,\text{Sec}[d+e\,x]^2+2\,i\,c\,\text{Sec}[d+e\,x]^2+\frac{\sqrt{a+i\,b-c}\,(c\,\text{Sec}[d+e\,x]^2\,\text{Tan}[d+e\,x]+\text{Sec}[d+e\,x]^2\,(b+c\,\text{Tan}[d+e\,x]))}{\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}}\right)}{(a+i\,b-c)^{3/2}\,(-i+\text{Tan}[d+e\,x])}+$$

$$\Big(2\,\text{Sec}[d+e\,x]^2\,\Big(2\,a+2\,i\,c\,\text{Tan}[d+e\,x]+b\,(i+\text{Tan}[d+e\,x])+2\,\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Big/$$

$$\Big((a+i\,b-c)^{3/2}\,(-i+\text{Tan}[d+e\,x])^2\Big)\Bigg)\Bigg)\Bigg/$$

$$\Big(2\,\Big(2\,a+2\,i\,c\,\text{Tan}[d+e\,x]+b\,(i+\text{Tan}[d+e\,x])+2\,\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\Big)\Big)\Bigg)\Bigg)$$

- **Problem 8: Humongous result has more than 200000 leaves.**

$$\int \text{Cot}[d+e\,x]^2\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\,dx$$

Optimal (type 3, 612 leaves, 17 steps):

$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$
$$\text{ArcTan}\Big[\left(b\sqrt{a^2+b^2-2\,a\,c+c^2}-\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\right)\text{Tan}[d+e\,x]\right)\Big/$$
$$\left.\left.\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)-\frac{b\,\text{ArcTanh}\left[\frac{2\,a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2\sqrt{a}\,e}+$$
$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\right.$$
$$\text{ArcTanh}\Big[\left(b\sqrt{a^2+b^2-2\,a\,c+c^2}+\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\right)\text{Tan}[d+e\,x]\right)\Big/$$
$$\left.\left.\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-a\left(2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2\,a\,c+c^2\right)^{1/4}e\right)-\frac{\text{Cot}[d+e\,x]\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{e}$$

Result (type ?, 325 881 leaves): Display of huge result suppressed!

- **Problem 9: Humongous result has more than 200000 leaves.**

$$\int \text{Cot}[d+e\,x]^3\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\,dx$$

Optimal (type 3, 690 leaves, 21 steps):

$$\left(\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\text{ArcTan}\Big[\left(b^2+(a-c)\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)-b\sqrt{a^2+b^2-2ac+c^2}\,\text{Tan}[d+e\,x]\right)\Big/$$
$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c+\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c+\sqrt{a^2+b^2-2ac+c^2}\right)}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)+\frac{\sqrt{a}\ \text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{e}+\frac{\left(b^2-4ac\right)\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{8a^{3/2}e}-$$
$$\left(\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\right.$$
$$\text{ArcTanh}\Big[\left(b^2+(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)+b\sqrt{a^2+b^2-2ac+c^2}\,\text{Tan}[d+e\,x]\right)\Big/$$
$$\left.\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}\sqrt{a^2+b^2+c\left(c-\sqrt{a^2+b^2-2ac+c^2}\right)-a\left(2c-\sqrt{a^2+b^2-2ac+c^2}\right)}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{1/4}e\right)-\frac{\text{Cot}[d+e\,x]^2\,(2a+b\,\text{Tan}[d+e\,x])\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{4ae}$$

Result (type ?, 439 306 leaves) : Display of huge result suppressed!

- **Problem 10: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[d+e\,x]^5}{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\,dx$$

Optimal (type 3, 548 leaves, 15 steps) :

$$\frac{\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTanh}\left[\frac{a-c-\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\ \sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\ \sqrt{a^2+b^2-2ac+c^2}\ e}-$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTanh}\left[\frac{a-c+\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\ \sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\ \sqrt{a^2+b^2-2ac+c^2}\ e}+\frac{b\,\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2\,c^{3/2}\,e}-$$

$$\frac{b\left(5b^2-12ac\right)\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{16\,c^{7/2}\,e}-\frac{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{c\,e}+$$

$$\frac{\text{Tan}[d+e\,x]^2\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{3\,c\,e}+\frac{\left(15b^2-16ac-10bc\,\text{Tan}[d+e\,x]\right)\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{24\,c^3\,e}$$

Result (type 3, 389 leaves) :

$$\frac{1}{16\,e}\left(-\frac{8\,\text{Log}\left[\frac{2a-\text{i}b+(b-2\,\text{i}\,c)\,\text{Tan}[d+e\,x]+2\sqrt{a-\text{i}b-c}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{8\sqrt{a-\text{i}b-c}\ c^3\,(\text{i}+\text{Tan}[d+e\,x])}\right]}{\sqrt{a-\text{i}b-c}}-\frac{8\,\text{Log}\left[\frac{2a+\text{i}b+(b+2\,\text{i}\,c)\,\text{Tan}[d+e\,x]+2\sqrt{a+\text{i}b-c}\ \sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{8\sqrt{a+\text{i}b-c}\ c^3\,(-\text{i}+\text{Tan}[d+e\,x])}\right]}{\sqrt{a+\text{i}b-c}}+\right.$$

$$\frac{b\left(-5b^2+4c\,(3a+2c)\right)\text{Log}\left[b+2c\,\text{Tan}[d+e\,x]+2\sqrt{c}\ \sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right]}{c^{7/2}}+$$

$$\left.1\Big/\left(3c^3\right)\sqrt{2}\ \sqrt{\text{Sec}[d+e\,x]^2\,(a+c+(a-c)\,\text{Cos}[2\,(d+e\,x)]+b\,\text{Sin}[2\,(d+e\,x)])}\ \left(15b^2-16ac-32c^2+8c^2\,\text{Sec}[d+e\,x]^2-10bc\,\text{Tan}[d+e\,x]\right)\right)$$

Problem 11: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tan}[d+e\,x]^4}{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\,dx$$

Optimal (type 3, 495 leaves, 14 steps) :

$$\frac{\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTan}\left[\frac{b-\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)\text{Tan}[d+e x]}{\sqrt{2}\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2ac+c^2}\ e}-$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTan}\left[\frac{b-\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)\text{Tan}[d+e x]}{\sqrt{2}\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2ac+c^2}\ e}-\frac{\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{\sqrt{c}\ e}+$$

$$\frac{\left(3b^2-4ac\right)\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{8c^{5/2}e}-\frac{3b\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}{4c^2 e}+\frac{\text{Tan}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}{2ce}$$

Result (type 3, 388 leaves):

$$\frac{1}{8e}\left(-\frac{4\,i\,\text{Log}\left[-\frac{i\left(2a-2ic\,\text{Tan}[d+e x]+b\,(-i+\text{Tan}[d+e x])+2\sqrt{a-ib-c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)}{4\sqrt{a-ib-c}\,c^2\,(i+\text{Tan}[d+e x])}\right]}{\sqrt{a-ib-c}}+\right.$$

$$\frac{4\,i\,\text{Log}\left[\frac{i\left(2a+2ic\,\text{Tan}[d+e x]+b\,(i+\text{Tan}[d+e x])+2\sqrt{a+ib-c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)}{4\sqrt{a+ib-c}\,c^2\,(-i+\text{Tan}[d+e x])}\right]}{\sqrt{a+ib-c}}+$$

$$\left.\frac{\left(3b^2-4c\,(a+2c)\right)\text{Log}\left[b+2c\,\text{Tan}[d+e x]+2\sqrt{c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right]}{c^{5/2}}\right)+$$

$$\frac{\sqrt{\frac{a+c+a\,\text{Cos}[2(d+e x)]-c\,\text{Cos}[2(d+e x)]+b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}\left(-\frac{3b}{4c^2}+\frac{\text{Tan}[d+e x]}{2c}\right)}{e}$$

- **Problem 12: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[d+e x]^3}{\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\,dx$$

Optimal (type 3, 383 leaves, 11 steps):

$$-\frac{\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTanh}\left[\frac{a-c-\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e x]}{\sqrt{2}\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2ac+c^2}\ e}+$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\ \text{ArcTanh}\left[\frac{a-c+\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e x]}{\sqrt{2}\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2ac+c^2}\ e}-$$

$$\frac{b\,\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e x]}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\right]}{2c^{3/2}e}+\frac{\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}{c\,e}$$

Result (type 3, 325 leaves) :

$$\frac{1}{2e}\left(\frac{\text{Log}\left[\frac{\frac{2a-i b+(b-2ic)\text{Tan}[d+e x]}{\sqrt{a-i b-c}}+2\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}{c\,(i+\text{Tan}[d+e x])}\right]}{\sqrt{a-i b-c}}+\frac{\text{Log}\left[\frac{2a+2ic\,\text{Tan}[d+e x]+b\,(i+\text{Tan}[d+e x])+2\sqrt{a+i b-c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}{\sqrt{a+i b-c}\ c\,(-i+\text{Tan}[d+e x])}\right]}{\sqrt{a+i b-c}}-\right.$$

$$\left.\frac{b\,\text{Log}\left[b+2c\,\text{Tan}[d+e x]+2\sqrt{c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right]}{c^{3/2}}\right)+\frac{\sqrt{\frac{a+c+a\,\text{Cos}[2(d+e x)]-c\,\text{Cos}[2(d+e x)]+b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}}{c\,e}$$

- **Problem 13: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[d+e x]^2}{\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}\,dx$$

Optimal (type 3, 352 leaves, 9 steps) :

$$-\frac{\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTan}\left[\frac{b-\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]}{\sqrt{2}\;\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\;\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}+$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTan}\left[\frac{b-\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]}{\sqrt{2}\;\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\;\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}+\frac{\text{ArcTanh}\left[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\,\sqrt{c}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{c}\;e}$$

Result (type 3, 255 leaves) :

$$\frac{1}{2\,e}\left(-\frac{i\,\text{Log}\left[\frac{2\left(\frac{-2\,i\,a+b+(-i\,b+2\,c)\,\text{Tan}[d+e\,x]}{\sqrt{a+i\,b-c}}-2\,i\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)}{-i+\text{Tan}[d+e\,x]}\right]}{\sqrt{a+i\,b-c}}+\frac{i\,\text{Log}\left[\frac{2\left(\frac{2\,i\,a+b+(i\,b+2\,c)\,\text{Tan}[d+e\,x]}{\sqrt{a-i\,b-c}}+2\,i\,\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right)}{i+\text{Tan}[d+e\,x]}\right]}{\sqrt{a-i\,b-c}}+\frac{2\,\text{Log}\left[b+2\,c\,\text{Tan}[d+e\,x]+2\,\sqrt{c}\;\sqrt{a+\text{Tan}[d+e\,x]\,(b+c\,\text{Tan}[d+e\,x])}\right]}{\sqrt{c}}\right)$$

■ Problem 14: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tan}[d+e\,x]}{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\,dx$$

Optimal (type 3, 294 leaves, 6 steps) :

$$\frac{\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTanh}\left[\frac{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\;\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\;\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}-$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTanh}\left[\frac{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\;\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\;\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}$$

Result (type 3, 196 leaves) :

$$-\frac{1}{2 e}\left(\frac{\text{Log}\left[\frac{2\left(\frac{2 a-i b+(b-2 i c) \text{Tan}[d+e x]}{\sqrt{a-i b-c}}+2 \sqrt{a+\text{Tan}[d+e x]\ (b+c \text{Tan}[d+e x])}\right)}{i+\text{Tan}[d+e x]}\right]}{\sqrt{a-i b-c}}+\frac{\text{Log}\left[\frac{2\left(\frac{2 a+i b+(b+2 i c) \text{Tan}[d+e x]}{\sqrt{a+i b-c}}+2 \sqrt{a+\text{Tan}[d+e x]\ (b+c \text{Tan}[d+e x])}\right)}{-i+\text{Tan}[d+e x]}\right]}{\sqrt{a+i b-c}}\right)$$

Problem 15: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{1}{\sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}} \, dx$$

Optimal (type 3, 298 leaves, 6 steps):

$$\frac{\sqrt{a-c-\sqrt{a^2+b^2-2 a c+c^2}}\ \text{ArcTan}\left[\frac{b-\left(a-c-\sqrt{a^2+b^2-2 a c+c^2}\right) \text{Tan}[d+e x]}{\sqrt{2} \sqrt{a-c-\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}}\right]}{\sqrt{2} \sqrt{a^2+b^2-2 a c+c^2}\ e}-$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2 a c+c^2}}\ \text{ArcTan}\left[\frac{b-\left(a-c+\sqrt{a^2+b^2-2 a c+c^2}\right) \text{Tan}[d+e x]}{\sqrt{2} \sqrt{a-c+\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}}\right]}{\sqrt{2} \sqrt{a^2+b^2-2 a c+c^2}\ e}$$

Result (type 3, 229 leaves):

$$\frac{1}{2 e} i \left(-\frac{\text{Log}\left[-\frac{2 i \left(2 a-i b+(b-2 i c) \text{Tan}[d+e x]+2 \sqrt{a-i b-c} \sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}\right)}{\sqrt{a-i b-c}\ (i+\text{Tan}[d+e x])}\right]}{\sqrt{a-i b-c}}+\frac{\text{Log}\left[\frac{2 i \left(2 a+i b+(b+2 i c) \text{Tan}[d+e x]+2 \sqrt{a+i b-c} \sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}\right)}{\sqrt{a+i b-c}\ (-i+\text{Tan}[d+e x])}\right]}{\sqrt{a+i b-c}}\right)$$

Problem 16: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.

$$\int \frac{\text{Cot}[d+e x]}{\sqrt{a+b \text{Tan}[d+e x]+c \text{Tan}[d+e x]^2}} \, dx$$

Optimal (type 3, 350 leaves, 10 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{a}\;e}-\frac{\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTanh}\left[\frac{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}+$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTanh}\left[\frac{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}$$

Result (type 4, 154 575 leaves) : Display of huge result suppressed!

- **Problem 17: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Cot}[d+e\,x]^2}{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\,dx$$

Optimal (type 3, 395 leaves, 11 steps) :

$$-\frac{\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTan}\left[\frac{b-\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]}{\sqrt{2}\sqrt{a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}+$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\;\text{ArcTan}\left[\frac{b-\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]}{\sqrt{2}\sqrt{a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\sqrt{a^2+b^2-2\,a\,c+c^2}\;e}+$$

$$\frac{b\,\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2\,a^{3/2}\,e}-\frac{\text{Cot}[d+e\,x]\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{a\,e}$$

Result (type 4, 167 080 leaves) : Display of huge result suppressed!

- **Problem 18: Humongous result has more than 200000 leaves.**

$$\int\frac{\text{Cot}[d+e\,x]^3}{\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\,dx$$

Optimal (type 3, 500 leaves, 14 steps) :

$$\frac{\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{a}\,e}-\frac{\left(3b^2-4ac\right)\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{8a^{5/2}\,e}+$$

$$\frac{\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\;\text{ArcTanh}\left[\frac{a-c-\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\,\sqrt{a-c-\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2-2ac+c^2}\,e}-$$

$$\frac{\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\;\text{ArcTanh}\left[\frac{a-c+\sqrt{a^2+b^2-2ac+c^2}+b\,\text{Tan}[d+e\,x]}{\sqrt{2}\,\sqrt{a-c+\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{\sqrt{2}\,\sqrt{a^2+b^2-2ac+c^2}\,e}+$$

$$\frac{3b\,\text{Cot}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{4a^2\,e}-\frac{\text{Cot}[d+e\,x]^2\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{2a\,e}$$

Result (type ?, 281 691 leaves) : Display of huge result suppressed!

Problem 19: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\text{Tan}[d+e\,x]^7}{\left(a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 1190 leaves, 20 steps) :

$$\frac{3b\,\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2c^{5/2}\,e}-\frac{5b\left(7b^2-12ac\right)\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+e\,x]}{2\sqrt{c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{16c^{9/2}\,e}-$$

$$\Bigg(\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}$$

$$\text{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)-b\left(2a-2c-\sqrt{a^2+b^2-2ac+c^2}\right)\text{Tan}[d+e\,x]\Big)\Big/$$

$$\left(\sqrt{2}\,\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\Bigg)\Big/$$

$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{3/2}e\right)+\Bigg(\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}$$

$$\text{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\left(2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]\Big)\Big/$$

$$\left(\sqrt{2}\,\sqrt{2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2-(a-c)\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\Big]\Big)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{3/2}e\right)+\frac{2\,(2\,a+b\,\text{Tan}[d+e\,x])}{\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}-$$

$$\frac{2\,\text{Tan}[d+e\,x]^2\,(2\,a+b\,\text{Tan}[d+e\,x])}{\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+\frac{2\,\text{Tan}[d+e\,x]^4\,(2\,a+b\,\text{Tan}[d+e\,x])}{\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}-$$

$$\frac{2\left(a\left(b^2-2\,(a-c)\,c\right)+b\,c\,(a+c)\,\text{Tan}[d+e\,x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{\left(7\,b^2-16\,a\,c\right)\text{Tan}[d+e\,x]^2\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{3\,c^2\left(b^2-4\,a\,c\right)e}-$$

$$\frac{2\,b\,\text{Tan}[d+e\,x]^3\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{c\left(b^2-4\,a\,c\right)e}-$$

$$\frac{\left(3\,b^2-8\,a\,c-2\,b\,c\,\text{Tan}[d+e\,x]\right)\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{c^2\left(b^2-4\,a\,c\right)e}+$$

$$\frac{\left(105\,b^4-460\,a\,b^2\,c+256\,a^2\,c^2-2\,b\,c\left(35\,b^2-116\,a\,c\right)\text{Tan}[d+e\,x]\right)\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{24\,c^4\left(b^2-4\,a\,c\right)e}$$

Result (type 3, 884 leaves) :

$$\frac{1}{16\,e}\left(\frac{8\,\mathrm{Log}\left[\frac{-2\,a-i\,b-(b+2\,i\,c)\,\mathrm{Tan}[d+e\,x]-2\,\sqrt{a+i\,b-c}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}{8\,(a-i\,b-c)\,\sqrt{a+i\,b-c}\,c^4\,(-i+\mathrm{Tan}[d+e\,x])}\right]}{(a+i\,b-c)^{3/2}}+\frac{8\,\mathrm{Log}\left[\frac{-2\,a+i\,b-b\,\mathrm{Tan}[d+e\,x]+2\,i\,c\,\mathrm{Tan}[d+e\,x]-2\,\sqrt{a-i\,b-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}{8\,\sqrt{a-i\,b-c}\,(a+i\,b-c)\,c^4\,(i+\mathrm{Tan}[d+e\,x])}\right]}{(a-i\,b-c)^{3/2}}+\right.$$

$$\left.\frac{b\,\left(-35\,b^2+60\,a\,c+24\,c^2\right)\,\mathrm{Log}\left[b+2\,c\,\mathrm{Tan}[d+e\,x]+2\,\sqrt{c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}\right]}{c^{9/2}}\right)+$$

$$\frac{1}{e}\sqrt{\frac{a+c+a\,\mathrm{Cos}[2\,(d+e\,x)]-c\,\mathrm{Cos}[2\,(d+e\,x)]+b\,\mathrm{Sin}[2\,(d+e\,x)]}{1+\mathrm{Cos}[2\,(d+e\,x)]}}$$

$$\left(-\left(105\,a^3\,b^4+105\,a\,b^6-460\,a^4\,b^2\,c-727\,a^2\,b^4\,c-57\,b^6\,c+256\,a^5\,c^2+1364\,a^3\,b^2\,c^2+407\,a\,b^4\,c^2-448\,a^4\,c^3-740\,a^2\,b^2\,c^3-\right.\right.$$

$$\left.25\,b^4\,c^3+96\,a^3\,c^4+44\,a\,b^2\,c^4+224\,a^2\,c^5+32\,b^2\,c^5-128\,a\,c^6\right)\Big/\left(24\,(a-c)\,(a-i\,b-c)\,(a+i\,b-c)\,c^4\,\left(-b^2+4\,a\,c\right)\right)+$$

$$\frac{\mathrm{Sec}[d+e\,x]^2}{3\,c^2}+\left(2\,\left(2\,a^3\,b^4+2\,a\,b^6-8\,a^4\,b^2\,c-12\,a^2\,b^4\,c+4\,a^5\,c^2+18\,a^3\,b^2\,c^2-4\,a^4\,c^3+a^4\,b^3\,\mathrm{Sin}[2\,(d+e\,x)]+\right.\right.$$

$$2\,a^2\,b^5\,\mathrm{Sin}[2\,(d+e\,x)]+b^7\,\mathrm{Sin}[2\,(d+e\,x)]-3\,a^5\,b\,c\,\mathrm{Sin}[2\,(d+e\,x)]-10\,a^3\,b^3\,c\,\mathrm{Sin}[2\,(d+e\,x)]-$$

$$\left.\left.7\,a\,b^5\,c\,\mathrm{Sin}[2\,(d+e\,x)]+10\,a^4\,b\,c^2\,\mathrm{Sin}[2\,(d+e\,x)]+14\,a^2\,b^3\,c^2\,\mathrm{Sin}[2\,(d+e\,x)]-7\,a^3\,b\,c^3\,\mathrm{Sin}[2\,(d+e\,x)]\right)\right)\Big/$$

$$\left.\left((a-c)\,(a-i\,b-c)\,(a+i\,b-c)\,c^3\,\left(-b^2+4\,a\,c\right)\,(a+c+a\,\mathrm{Cos}[2\,(d+e\,x)]-c\,\mathrm{Cos}[2\,(d+e\,x)]+b\,\mathrm{Sin}[2\,(d+e\,x)])\right)-\frac{11\,b\,\mathrm{Tan}[d+e\,x]}{12\,c^3}\right)$$

- **Problem 20: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\mathrm{Tan}[d+e\,x]^5}{\left(a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 864 leaves, 14 steps) :

$$-\frac{3\,b\,\text{ArcTanh}\left[\frac{b+2\,c\,\text{Tan}[d+e\,x]}{2\,\sqrt{c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{2\,c^{5/2}\,e}+\left(\sqrt{2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2+(a-c)\,\sqrt{a^2+b^2-2\,a\,c+c^2}}\right.$$

$$\text{ArcTanh}\left[\left(b^2-(a-c)\,\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\,\left(2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\,\text{Tan}[d+e\,x]\right)\Big/\right.$$

$$\left.\left.\left(\sqrt{2}\,\sqrt{2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2+(a-c)\,\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{3/2}\,e\right)-\left(\sqrt{2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2-(a-c)\,\sqrt{a^2+b^2-2\,a\,c+c^2}}\right.$$

$$\text{ArcTanh}\left[\left(b^2-(a-c)\,\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\,\left(2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\,\text{Tan}[d+e\,x]\right)\Big/\right.$$

$$\left.\left.\left(\sqrt{2}\,\sqrt{2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2-(a-c)\,\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{3/2}\,e\right)-\frac{2\,(2\,a+b\,\text{Tan}[d+e\,x])}{\left(b^2-4\,a\,c\right)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{2\,\text{Tan}[d+e\,x]^2\,(2\,a+b\,\text{Tan}[d+e\,x])}{\left(b^2-4\,a\,c\right)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{2\,\left(a\,\left(b^2-2\,(a-c)\,c\right)+b\,c\,(a+c)\,\text{Tan}[d+e\,x]\right)}{\left(b^2+(a-c)^2\right)\,\left(b^2-4\,a\,c\right)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{\left(3\,b^2-8\,a\,c-2\,b\,c\,\text{Tan}[d+e\,x]\right)\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{c^2\,\left(b^2-4\,a\,c\right)\,e}$$

Result (type 3, 697 leaves) :

$$\frac{1}{2e}\left(-\frac{\text{Log}\left[\frac{2a-2\,i\,c\,\text{Tan}[d+e x]+b\,(-i+\text{Tan}[d+e x])+2\sqrt{a-i\,b-c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}{\sqrt{a-i\,b-c}\,(a+i\,b-c)\,c^2\,(i+\text{Tan}[d+e x])}\right]}{(a-i\,b-c)^{3/2}}-\frac{\text{Log}\left[\frac{2a+2\,i\,c\,\text{Tan}[d+e x]+b\,(i+\text{Tan}[d+e x])+2\sqrt{a+i\,b-c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}}{(a-i\,b-c)\,\sqrt{a+i\,b-c}\,c^2\,(-i+\text{Tan}[d+e x])}\right]}{(a+i\,b-c)^{3/2}}-\frac{3\,b\,\text{Log}\left[b+2\,c\,\text{Tan}[d+e x]+2\sqrt{c}\,\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right]}{c^{5/2}}\right)+$$

$$\frac{1}{e}\sqrt{\frac{a+c+a\,\text{Cos}[2\,(d+e x)]-c\,\text{Cos}[2\,(d+e x)]+b\,\text{Sin}[2\,(d+e x)]}{1+\text{Cos}[2\,(d+e x)]}}\left(\frac{-3\,a^3\,b^2-3\,a\,b^4+8\,a^4\,c+15\,a^2\,b^2\,c+b^4\,c-16\,a^3\,c^2-7\,a\,b^2\,c^2+12\,a^2\,c^3+b^2\,c^3-4\,a\,c^4}{(a-c)\,(a-i\,b-c)\,(a+i\,b-c)\,c^2\,(-b^2+4\,a\,c)}-\right.$$
$$\Big(2\,\big(-2\,a^3\,b^2-2\,a\,b^4+4\,a^4\,c+8\,a^2\,b^2\,c-4\,a^3\,c^2-a^4\,b\,\text{Sin}[2\,(d+e x)]-2\,a^2\,b^3\,\text{Sin}[2\,(d+e x)]-$$
$$b^5\,\text{Sin}[2\,(d+e x)]+6\,a^3\,b\,c\,\text{Sin}[2\,(d+e x)]+5\,a\,b^3\,c\,\text{Sin}[2\,(d+e x)]-5\,a^2\,b\,c^2\,\text{Sin}[2\,(d+e x)]\big)\Big)\Big/$$
$$\left.\Big((a-c)\,(a-i\,b-c)\,(a+i\,b-c)\,c\,(-b^2+4\,a\,c)\,(a+c+a\,\text{Cos}[2\,(d+e x)]-c\,\text{Cos}[2\,(d+e x)]+b\,\text{Sin}[2\,(d+e x)])\Big)\right)$$

- **Problem 21: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Tan}[d+e x]^3}{\left(a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 686 leaves, 10 steps) :

$$-\left(\sqrt{2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a^2-b^2-2 a c+c^2+(a-c)\sqrt{a^2+b^2-2 a c+c^2}}\right.$$

$$\text{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2 a c+c^2}\right)-b\left(2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}\right)\text{Tan}[d+e x]\Big)\Big/$$

$$\left.\left(\sqrt{2}\ \sqrt{2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a^2-b^2-2 a c+c^2+(a-c)\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\ \left(a^2+b^2-2 a c+c^2\right)^{3/2} e\right)+\left(\sqrt{2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a^2-b^2-2 a c+c^2-(a-c)\sqrt{a^2+b^2-2 a c+c^2}}\right.$$

$$\text{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2 a c+c^2}\right)-b\left(2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}\right)\text{Tan}[d+e x]\Big)\Big/$$

$$\left.\left(\sqrt{2}\ \sqrt{2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a^2-b^2-2 a c+c^2-(a-c)\sqrt{a^2+b^2-2 a c+c^2}}\ \sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\ \left(a^2+b^2-2 a c+c^2\right)^{3/2} e\right)+\frac{2\,(2 a+b\,\text{Tan}[d+e x])}{\left(b^2-4 a c\right) e\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}-$$

$$\frac{2\left(a\left(b^2-2\,(a-c)\,c\right)+b\,c\,(a+c)\,\text{Tan}[d+e x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4 a c\right) e\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}$$

Result (type 3, 738 leaves) :

$$\frac{1}{2e}\left(\frac{\text{Log}\left[\frac{4a-4ic\,\text{Tan}[d+ex]+2b\,(-i+\text{Tan}[d+ex])+4\sqrt{a-ib-c}\,\sqrt{a+\text{Tan}[d+ex]\,(b+c\,\text{Tan}[d+ex])}}{\sqrt{a-ib-c}\,(a+ib-c)\,(i+\text{Tan}[d+ex])}\right]}{(a-ib-c)^{3/2}}+\frac{\text{Log}\left[\frac{4a+4ic\,\text{Tan}[d+ex]+2b\,(i+\text{Tan}[d+ex])+4\sqrt{a+ib-c}\,\sqrt{a+\text{Tan}[d+ex]\,(b+c\,\text{Tan}[d+ex])}}{(a-ib-c)\,\sqrt{a+ib-c}\,(-i+\text{Tan}[d+ex])}\right]}{(a+ib-c)^{3/2}}\right)+$$

$$\frac{1}{e}\sqrt{\frac{a+c+a\,\text{Cos}[2\,(d+ex)]-c\,\text{Cos}[2\,(d+ex)]+b\,\text{Sin}[2\,(d+ex)]}{1+\text{Cos}[2\,(d+ex)]}}\left(-\frac{2a\left(2a^2+b^2-2ac\right)}{(a-c)\,(a-ib-c)\left(-ab^2-ib^3+4a^2c+4iabc+b^2c-4ac^2\right)}+\left((\text{Cos}[2\,(d+ex)]-i\,\text{Sin}[2\,(d+ex)])\right.\right.$$
$$\left(ia^3b+2ia^2bc+ib^3c-3iabc^2+8a^3c\,\text{Cos}[2\,(d+ex)]+4ab^2c\,\text{Cos}[2\,(d+ex)]-8a^2c^2\,\text{Cos}[2\,(d+ex)]-ia^3b\,\text{Cos}[4\,(d+ex)]-\right.$$
$$2ia^2bc\,\text{Cos}[4\,(d+ex)]-ib^3c\,\text{Cos}[4\,(d+ex)]+3iabc^2\,\text{Cos}[4\,(d+ex)]+8ia^3c\,\text{Sin}[2\,(d+ex)]+4iab^2c\,\text{Sin}[2\,(d+ex)]-$$
$$\left.8ia^2c^2\,\text{Sin}[2\,(d+ex)]+a^3b\,\text{Sin}[4\,(d+ex)]+2a^2bc\,\text{Sin}[4\,(d+ex)]+b^3c\,\text{Sin}[4\,(d+ex)]-3abc^2\,\text{Sin}[4\,(d+ex)]\right)\Big)\Big/$$
$$\left.\left((a-c)\,(a-ib-c)\,(a+ib-c)\left(-b^2+4ac\right)(a+c+a\,\text{Cos}[2\,(d+ex)]-c\,\text{Cos}[2\,(d+ex)]+b\,\text{Sin}[2\,(d+ex)])\right)\right)$$

■ Problem 22: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tan}[d+ex]^2}{\left(a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 638 leaves, 7 steps) :

$$-\left(\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\right.$$
$$\text{ArcTan}\Big[\Big(b\left(2a-2c+\sqrt{a^2+b^2-2ac+c^2}\right)+\left(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+e x]\Big)\Big/$$
$$\left.\left(\sqrt{2}\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{3/2}e\right)+\left(\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\right.$$
$$\text{ArcTan}\Big[\Big(b\left(2a-2c-\sqrt{a^2+b^2-2ac+c^2}\right)+\left(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+e x]\Big)\Big/$$
$$\left.\left(\sqrt{2}\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\;\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}\right)\Big]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{3/2}e\right)-\frac{2\left(ab(a+c)+c\left(2a^2+b^2-2ac\right)\text{Tan}[d+e x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4ac\right)e\sqrt{a+b\,\text{Tan}[d+e x]+c\,\text{Tan}[d+e x]^2}}$$

Result (type 3, 538 leaves) :

$$\frac{1}{2e}\mathrm{i}\left(\frac{\text{Log}\left[\frac{2\left(2\mathrm{i}a+b+\mathrm{i}b\,\text{Tan}[d+e x]+2c\,\text{Tan}[d+e x]+2\mathrm{i}\sqrt{a-\mathrm{i}b-c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)}{\sqrt{a-\mathrm{i}b-c}\,(a+\mathrm{i}b-c)\,(\mathrm{i}+\text{Tan}[d+e x])}\right]}{(a-\mathrm{i}b-c)^{3/2}}-\right.$$
$$\left.\frac{\text{Log}\left[\frac{2\left(-2\mathrm{i}a+b-\mathrm{i}b\,\text{Tan}[d+e x]+2c\,\text{Tan}[d+e x]-2\mathrm{i}\sqrt{a+\mathrm{i}b-c}\sqrt{a+\text{Tan}[d+e x]\,(b+c\,\text{Tan}[d+e x])}\right)}{(a-\mathrm{i}b-c)\sqrt{a+\mathrm{i}b-c}\,(-\mathrm{i}+\text{Tan}[d+e x])}\right]}{(a+\mathrm{i}b-c)^{3/2}}\right)+$$
$$\frac{1}{e}\sqrt{\frac{a+c+a\,\text{Cos}[2(d+e x)]-c\,\text{Cos}[2(d+e x)]+b\,\text{Sin}[2(d+e x)]}{1+\text{Cos}[2(d+e x)]}}$$
$$\left(\frac{2ab(a+c)}{(a-c)(a-\mathrm{i}b-c)(a+\mathrm{i}b-c)\left(-b^2+4ac\right)}+\left(2\left(-2a^2bc-2abc^2-a^2b^2\,\text{Sin}[2(d+e x)]+\right.\right.\right.$$
$$\left.\left.2a^3c\,\text{Sin}[2(d+e x)]-4a^2c^2\,\text{Sin}[2(d+e x)]-b^2c^2\,\text{Sin}[2(d+e x)]+2ac^3\,\text{Sin}[2(d+e x)]\right)\right)\Big/$$
$$\left.\left((a-c)(a-\mathrm{i}b-c)(a+\mathrm{i}b-c)\left(-b^2+4ac\right)\left(a+c+a\,\text{Cos}[2(d+e x)]-c\,\text{Cos}[2(d+e x)]+b\,\text{Sin}[2(d+e x)]\right)\right)\right)$$

Problem 23: Result unnecessarily involves imaginary or complex numbers.

$$\int \frac{\mathrm{Tan}[d+e\,x]}{\left(a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 635 leaves, 7 steps):

$$\Bigg(\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\;\mathrm{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)-b\left(2a-2c-\sqrt{a^2+b^2-2ac+c^2}\right)\mathrm{Tan}[d+e\,x]\Big)\Big/\Big(\sqrt{2}\,\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}\Big)\Big]\Bigg)\Big/\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{3/2}e\right)-\Bigg(\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\;\mathrm{ArcTanh}\Big[\Big(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)-b\left(2a-2c+\sqrt{a^2+b^2-2ac+c^2}\right)\mathrm{Tan}[d+e\,x]\Big)\Big/\Big(\sqrt{2}\,\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}\Big)\Big]\Bigg)\Big/\left(\sqrt{2}\left(a^2+b^2-2ac+c^2\right)^{3/2}e\right)+\frac{2\left(a\left(b^2-2(a-c)c\right)+b\,c\,(a+c)\,\mathrm{Tan}[d+e\,x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4ac\right)e\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]+c\,\mathrm{Tan}[d+e\,x]^2}}$$

Result (type 3, 535 leaves):

$$-\frac{\mathrm{Log}\left[\frac{4a-4ic\,\mathrm{Tan}[d+e\,x]+2b\,(-i+\mathrm{Tan}[d+e\,x])+4\sqrt{a-ib-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}{\sqrt{a-ib-c}\,(a+ib-c)\,(i+\mathrm{Tan}[d+e\,x])}\right]}{2\,(a-ib-c)^{3/2}\,e}-\frac{\mathrm{Log}\left[\frac{4a+4ic\,\mathrm{Tan}[d+e\,x]+2b\,(i+\mathrm{Tan}[d+e\,x])+4\sqrt{a+ib-c}\,\sqrt{a+\mathrm{Tan}[d+e\,x]\,(b+c\,\mathrm{Tan}[d+e\,x])}}{(a-ib-c)\,\sqrt{a+ib-c}\,(-i+\mathrm{Tan}[d+e\,x])}\right]}{2\,(a+ib-c)^{3/2}\,e}+\frac{1}{e}\sqrt{\frac{a+c+a\,\mathrm{Cos}[2(d+e\,x)]-c\,\mathrm{Cos}[2(d+e\,x)]+b\,\mathrm{Sin}[2(d+e\,x)]}{1+\mathrm{Cos}[2(d+e\,x)]}}\left(\frac{2a\left(-b^2+2ac-2c^2\right)}{(a-c)\,(a-ib-c)\,(a+ib-c)\left(-b^2+4ac\right)}-\left(2\left(-2ab^2c+4a^2c^2-4ac^3-ab^3\,\mathrm{Sin}[2(d+e\,x)]+3a^2bc\,\mathrm{Sin}[2(d+e\,x)]-2abc^2\,\mathrm{Sin}[2(d+e\,x)]-bc^3\,\mathrm{Sin}[2(d+e\,x)]\right)\right)\Big/\left((a-c)\,(a-ib-c)\,(a+ib-c)\left(-b^2+4ac\right)\left(a+c+a\,\mathrm{Cos}[2(d+e\,x)]-c\,\mathrm{Cos}[2(d+e\,x)]+b\,\mathrm{Sin}[2(d+e\,x)]\right)\right)\right)$$

Problem 24: Humongous result has more than 200000 leaves.

$$\int \frac{\text{Cot}[d+e x]}{\left(a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2\right)^{3/2}} \, dx$$

Optimal (type 3, 750 leaves, 13 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2 a+b \,\text{Tan}[d+e x]}{2 \sqrt{a} \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}}\right]}{a^{3/2} e}-\left(\sqrt{2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a^2-b^2-2 a c+c^2+(a-c) \sqrt{a^2+b^2-2 a c+c^2}}\right.$$
$$\text{ArcTanh}\left[\left(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2 a c+c^2}\right)-b\left(2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}\right) \text{Tan}[d+e x]\right)\right/$$
$$\left.\left.\left(\sqrt{2} \sqrt{2 a-2 c-\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a^2-b^2-2 a c+c^2+(a-c) \sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2 a c+c^2\right)^{3/2} e\right)+\left(\sqrt{2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a^2-b^2-2 a c+c^2-(a-c) \sqrt{a^2+b^2-2 a c+c^2}}\right.$$
$$\text{ArcTanh}\left[\left(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2 a c+c^2}\right)-b\left(2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}\right) \text{Tan}[d+e x]\right)\right/$$
$$\left.\left.\left(\sqrt{2} \sqrt{2 a-2 c+\sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a^2-b^2-2 a c+c^2-(a-c) \sqrt{a^2+b^2-2 a c+c^2}} \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}\right)\right]\right)\Big/$$
$$\left(\sqrt{2}\left(a^2+b^2-2 a c+c^2\right)^{3/2} e\right)+\frac{2\left(b^2-2 a c+b c \,\text{Tan}[d+e x]\right)}{a\left(b^2-4 a c\right) e \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}}-$$
$$\frac{2\left(a\left(b^2-2(a-c) c\right)+b c(a+c) \,\text{Tan}[d+e x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4 a c\right) e \sqrt{a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2}}$$

Result (type ?, 512551 leaves): Display of huge result suppressed!

Problem 25: Humongous result has more than 200000 leaves.

$$\int \frac{\text{Cot}[d+e x]^2}{\left(a+b \,\text{Tan}[d+e x]+c \,\text{Tan}[d+e x]^2\right)^{3/2}} \, dx$$

Optimal (type 3, 829 leaves, 13 steps):

$$-\left(\sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\right.$$

$$\text{ArcTan}\Big[\Big(b\left(2a-2c+\sqrt{a^2+b^2-2ac+c^2}\right)+\left(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+ex]\Big)\Big/$$

$$\left.\left(\sqrt{2}\ \sqrt{2a-2c+\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a^2-b^2-2ac+c^2-(a-c)\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{3/2} e\right)+\left(\sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\right.$$

$$\text{ArcTan}\Big[\Big(b\left(2a-2c-\sqrt{a^2+b^2-2ac+c^2}\right)+\left(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2ac+c^2}\right)\right)\text{Tan}[d+ex]\Big)\Big/$$

$$\left.\left(\sqrt{2}\ \sqrt{2a-2c-\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a^2-b^2-2ac+c^2+(a-c)\sqrt{a^2+b^2-2ac+c^2}}\ \sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}\right)\Big]\right)\Big/$$

$$\left(\sqrt{2}\ \left(a^2+b^2-2ac+c^2\right)^{3/2} e\right)+\frac{3\,b\,\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+ex]}{2\sqrt{a}\ \sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}\right]}{2\,a^{5/2}\,e}+$$

$$\frac{2\,\text{Cot}[d+ex]\left(b^2-2ac+b\,c\,\text{Tan}[d+ex]\right)}{a\left(b^2-4ac\right)e\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}+$$

$$\frac{2\left(b\left(b^2-(3a-c)\,c\right)+c\left(b^2-2(a-c)\,c\right)\text{Tan}[d+ex]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4ac\right)e\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}-$$

$$\frac{\left(3b^2-8ac\right)\text{Cot}[d+ex]\sqrt{a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2}}{a^2\left(b^2-4ac\right)e}$$

Result (type ?, 536 928 leaves) : Display of huge result suppressed!

- **Problem 26: Humongous result has more than 200000 leaves.**

$$\int \frac{\text{Cot}[d+ex]^3}{\left(a+b\,\text{Tan}[d+ex]+c\,\text{Tan}[d+ex]^2\right)^{3/2}}\,dx$$

Optimal (type 3, 1007 leaves, 18 steps) :

$$\frac{\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{a^{3/2}\,e}-\frac{3\left(5\,b^2-4\,a\,c\right)\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]}{2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}\right]}{8\,a^{7/2}\,e}+$$

$$\left(\sqrt{2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2+(a-c)\sqrt{a^2+b^2-2\,a\,c+c^2}}\right.$$

$$\text{ArcTanh}\left[\left(b^2-(a-c)\left(a-c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\left(2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]\right)\right/$$

$$\left.\left.\left(\sqrt{2}\,\sqrt{2\,a-2\,c-\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2+(a-c)\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{3/2}e\right)-\left(\sqrt{2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2-(a-c)\sqrt{a^2+b^2-2\,a\,c+c^2}}\right.$$

$$\text{ArcTanh}\left[\left(b^2-(a-c)\left(a-c-\sqrt{a^2+b^2-2\,a\,c+c^2}\right)-b\left(2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}\right)\text{Tan}[d+e\,x]\right)\right/$$

$$\left.\left.\left(\sqrt{2}\,\sqrt{2\,a-2\,c+\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a^2-b^2-2\,a\,c+c^2-(a-c)\sqrt{a^2+b^2-2\,a\,c+c^2}}\,\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}\right)\right]\right)\Big/$$

$$\left(\sqrt{2}\,\left(a^2+b^2-2\,a\,c+c^2\right)^{3/2}e\right)-\frac{2\left(b^2-2\,a\,c+b\,c\,\text{Tan}[d+e\,x]\right)}{a\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{2\,\text{Cot}[d+e\,x]^2\left(b^2-2\,a\,c+b\,c\,\text{Tan}[d+e\,x]\right)}{a\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{2\left(a\left(b^2-2\,(a-c)\,c\right)+b\,c\,(a+c)\,\text{Tan}[d+e\,x]\right)}{\left(b^2+(a-c)^2\right)\left(b^2-4\,a\,c\right)e\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}+$$

$$\frac{b\left(15\,b^2-52\,a\,c\right)\text{Cot}[d+e\,x]\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{4\,a^3\left(b^2-4\,a\,c\right)e}-$$

$$\frac{\left(5\,b^2-12\,a\,c\right)\text{Cot}[d+e\,x]^2\sqrt{a+b\,\text{Tan}[d+e\,x]+c\,\text{Tan}[d+e\,x]^2}}{2\,a^2\left(b^2-4\,a\,c\right)e}$$

Result (type ?, 788 811 leaves) : Display of huge result suppressed!

- **Problem 27: Humongous result has more than 200000 leaves.**

$$\int \text{Tan}[d+e\,x]^5\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\,dx$$

Optimal (type 3, 270 leaves, 9 steps):

$$-\frac{\sqrt{a-b+c}\ \mathrm{ArcTanh}\left[\frac{2a-b+(b-2c)\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{a-b+c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{2\,e}+\frac{\left(b^3+2\,b^2\,c-4\,b\,(a-2\,c)\,c-8\,c^2\,(a+2\,c)\right)\mathrm{ArcTanh}\left[\frac{b+2\,c\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{32\,c^{5/2}\,e}-$$

$$\frac{\left((b-2\,c)\,(b+4\,c)+2\,c\,(b+2\,c)\,\mathrm{Tan}[d+e\,x]^2\right)\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}{16\,c^2\,e}+\frac{\left(a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4\right)^{3/2}}{6\,c\,e}$$

Result (type ?, 421 511 leaves): Display of huge result suppressed!

- **Problem 28: Humongous result has more than 200000 leaves.**

$$\int \mathrm{Tan}[d+e\,x]^3\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}\ dx$$

Optimal (type 3, 209 leaves, 8 steps):

$$\frac{\sqrt{a-b+c}\ \mathrm{ArcTanh}\left[\frac{2a-b+(b-2c)\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{a-b+c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{2\,e}-$$

$$\frac{\left(b^2+4\,b\,c-4\,c\,(a+2\,c)\right)\mathrm{ArcTanh}\left[\frac{b+2\,c\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{16\,c^{3/2}\,e}+\frac{\left(b-4\,c+2\,c\,\mathrm{Tan}[d+e\,x]^2\right)\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}{8\,c\,e}$$

Result (type ?, 307 606 leaves): Display of huge result suppressed!

- **Problem 29: Humongous result has more than 200000 leaves.**

$$\int \mathrm{Tan}[d+e\,x]\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}\ dx$$

Optimal (type 3, 179 leaves, 8 steps):

$$-\frac{\sqrt{a-b+c}\ \mathrm{ArcTanh}\left[\frac{2a-b+(b-2c)\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{a-b+c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{2\,e}+\frac{(b-2\,c)\,\mathrm{ArcTanh}\left[\frac{b+2\,c\,\mathrm{Tan}[d+e\,x]^2}{2\sqrt{c}\ \sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{4\sqrt{c}\ e}+\frac{\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}{2\,e}$$

Result (type ?, 216 968 leaves): Display of huge result suppressed!

- **Problem 32: Result unnecessarily involves imaginary or complex numbers.**

$$\int \mathrm{Tan}[d+e\,x]^2\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}\ dx$$

Optimal (type 4, 1254 leaves, 14 steps):

$$-\frac{\sqrt{a-b+c}\ \mathrm{ArcTan}\left[\frac{\sqrt{a-b+c}\ \mathrm{Tan}[d+e\,x]}{\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{2\,e}+\frac{\mathrm{Tan}[d+e\,x]\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}{3\,e}+$$

$$\frac{b\,\text{Tan}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{3\,\sqrt{c}\,e\,\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)}-\frac{\sqrt{c}\,\text{Tan}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{e\,\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)}-$$

$$\left(a^{1/4}\,b\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(3\,c^{3/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)+$$

$$\left(a^{1/4}\,c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)+\left(a^{1/4}\left(b+2\,\sqrt{a}\,\sqrt{c}\right)\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\right.$$

$$\left.\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/\left(6\,c^{3/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)-$$

$$\left(\left(b+\sqrt{a}\,\sqrt{c}-c\right)\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\,c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)+$$

$$\left(c^{1/4}\,(a-b+c)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)(a-b+c)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\,\sqrt{a}\,\sqrt{c}},\,2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\,\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)\right.$$

$$\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e\,x]^2\right)^2}}\Bigg/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)$$

Result (type 4, 639 leaves):

$$\frac{1}{e}\sqrt{((3\,a+b+3\,c+4\,a\,\text{Cos}[2\,(d+e\,x)]-4\,c\,\text{Cos}[2\,(d+e\,x)]+a\,\text{Cos}[4\,(d+e\,x)]-b\,\text{Cos}[4\,(d+e\,x)]+c\,\text{Cos}[4\,(d+e\,x)])\,/}$$
$$(3+4\,\text{Cos}[2\,(d+e\,x)]+\text{Cos}[4\,(d+e\,x)]))\left(\frac{(b-3\,c)\,\text{Sin}[2\,(d+e\,x)]}{6\,c}+\frac{1}{3}\,\text{Tan}[d+e\,x]\right)+\frac{1}{12\,c\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}$$
$$\left(\frac{1}{\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}}\,i\,\sqrt{2}\left((b-3\,c)\left(-b+\sqrt{b^2-4\,a\,c}\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\,\text{Tan}[d+e\,x]\right],\,\frac{b+\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}}\right]+\right.\right.$$
$$\left(b^2-b\left(-3\,c+\sqrt{b^2-4\,a\,c}\right)+c\left(-4\,a-6\,c+3\,\sqrt{b^2-4\,a\,c}\right)\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\,\text{Tan}[d+e\,x]\right],\,\frac{b+\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}}\right]+$$
$$\left.6\,c\,(a-b+c)\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c},\,i\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\,\text{Tan}[d+e\,x]\right],\,\frac{b+\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}}\right]\right)$$
$$\left.\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4\,a\,c}}}\,\sqrt{1+\frac{2\,c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4\,a\,c}}}-\frac{4\,(b-3\,c)\,\text{Tan}[d+e\,x]\left(a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4\right)}{1+\text{Tan}[d+e\,x]^2}\right)$$

- **Problem 33: Result unnecessarily involves imaginary or complex numbers.**

$$\int\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\,dx$$

Optimal (type 4, 829 leaves, 8 steps):

$$\frac{\sqrt{a-b+c}\ \text{ArcTan}\left[\frac{\sqrt{a-b+c}\ \text{Tan}[d+e x]}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\right]}{2 e}+\frac{\sqrt{c}\ \text{Tan}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{e\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)}-$$

$$\left(a^{1/4} c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(\left(b+\sqrt{a}\ \sqrt{c}-c\right)\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4} c^{1/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)-$$

$$\left(c^{1/4}\,(a-b+c)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)(a-b+c)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\ \sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

Result (type 4, 428 leaves) :

$$\frac{1}{2\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\;e\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}$$

$$i\left(\left(-b+\sqrt{b^2-4ac}\right)\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\;\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-\right.$$

$$\left(b-2c+\sqrt{b^2-4ac}\right)\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\;\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-$$

$$\left.2\,(a-b+c)\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},\,i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\;\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\right)$$

$$\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4ac}}}\;\sqrt{1-\frac{2c\,\text{Tan}[d+e\,x]^2}{-b+\sqrt{b^2-4ac}}}$$

- **Problem 34: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Cot}[d+e\,x]^2\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\;dx$$

Optimal (type 4, 861 leaves, 9 steps) :

$$-\frac{\sqrt{a-b+c}\,\text{ArcTan}\left[\frac{\sqrt{a-b+c}\,\text{Tan}[d+e x]}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\right]}{2 e}-\frac{\text{Cot}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{e}+\frac{\sqrt{c}\,\text{Tan}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{e\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)}-$$

$$\left(a^{1/4} c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right) c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2 a^{1/4} e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(c^{1/4}(a-b+c)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2 a^{1/4}\left(\sqrt{a}-\sqrt{c}\right) e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)(a-b+c)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/\left(4 a^{1/4}\left(\sqrt{a}-\sqrt{c}\right) c^{1/4} e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

Result (type 4, 1258 leaves) :

$$\frac{1}{e}\sqrt{((3 a+b+3 c+4 a\,\text{Cos}[2(d+e x)]-4 c\,\text{Cos}[2(d+e x)]+a\,\text{Cos}[4(d+e x)]-b\,\text{Cos}[4(d+e x)]+c\,\text{Cos}[4(d+e x)])\,/}$$

$$\left.(3+4\,\text{Cos}[2(d+e x)]+\text{Cos}[4(d+e x)])\right)\left(-\text{Cot}[d+e x]+\frac{1}{2}\text{Sin}[2(d+e x)]\right)+$$

$$\left(i\sqrt{2}\left(-b+\sqrt{b^2-4ac}\right)\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-\right.\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\right)\left(1+\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4ac}}}$$

$$\sqrt{1+\frac{2c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4ac}}}-2i\sqrt{2}\,c\,\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4ac}}}+$$

$$2i\sqrt{2}\,a\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4ac}}}-$$

$$2i\sqrt{2}\,b\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4ac}}}+$$

$$2i\sqrt{2}\,c\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e\,x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\left(1+\text{Tan}[d+e\,x]^2\right)$$

$$\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4\,a\,c}}}\;\sqrt{1+\frac{2\,c\,\text{Tan}[d+e\,x]^2}{b-\sqrt{b^2-4\,a\,c}}}-4\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\;\text{Tan}[d+e\,x]\,\left(a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4\right)\Bigg)\Bigg/$$

$$\left(4\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\;e\,\left(1+\text{Tan}[d+e\,x]^2\right)\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)$$

- **Problem 35: Result unnecessarily involves imaginary or complex numbers.**

$$\int \text{Cot}[d+e\,x]^4\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\;dx$$

Optimal (type 4, 943 leaves, 10 steps) :

$$\frac{\sqrt{a-b+c}\;\text{ArcTan}\left[\frac{\sqrt{a-b+c}\;\text{Tan}[d+e\,x]}{\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\right]}{2\,e}+\frac{(3\,a-b)\;\text{Cot}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{3\,a\,e}-$$

$$\frac{\text{Cot}[d+e\,x]^3\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{3\,e}-\frac{(3\,a-b)\,\sqrt{c}\;\text{Tan}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{3\,a\,e\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)}+$$

$$\left((3\,a-b)\,c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(3\,a^{3/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)-\left(\left(3\,a-b+\sqrt{a}\,\sqrt{c}\right)c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\right.$$

$$\left.\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/\left(6\,a^{3/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)-$$

$$\left(c^{1/4}\,(a-b+c)\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)(a-b+c)\,\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\,\sqrt{a}\,\sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)$$

Result (type 4, 1590 leaves):

$$\frac{1}{e}\sqrt{\left((3\,a+b+3\,c+4\,a\,\text{Cos}[2\,(d+e\,x)]-4\,c\,\text{Cos}[2\,(d+e\,x)]+a\,\text{Cos}[4\,(d+e\,x)]-b\,\text{Cos}[4\,(d+e\,x)]+c\,\text{Cos}[4\,(d+e\,x)]\right)\Big/}$$

$$\overline{\left.(3+4\,\text{Cos}[2\,(d+e\,x)]+\text{Cos}[4\,(d+e\,x)])\right)}$$

$$\left(\frac{(4\,a\,\text{Cos}[d+e\,x]-b\,\text{Cos}[d+e\,x])\,\text{Csc}[d+e\,x]}{3\,a}-\frac{1}{3}\,\text{Cot}[d+e\,x]\,\text{Csc}[d+e\,x]^2-\frac{(3\,a-b)\,\text{Sin}[2\,(d+e\,x)]}{6\,a}\right)+$$

$$\left(3\,\mathrm{i}\,\sqrt{2}\,a\left(b-\sqrt{b^2-4ac}\right)\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-\right.\right.$$

$$\left.\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\right)\left(1+\text{Tan}[d+ex]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+ex]^2}{b+\sqrt{b^2-4ac}}}$$

$$\sqrt{1+\frac{2c\,\text{Tan}[d+ex]^2}{b-\sqrt{b^2-4ac}}}+\mathrm{i}\,\sqrt{2}\,b\left(-b+\sqrt{b^2-4ac}\right)\left(\text{EllipticE}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-\right.$$

$$\left.\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\right)\left(1+\text{Tan}[d+ex]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+ex]^2}{b+\sqrt{b^2-4ac}}}$$

$$\sqrt{1+\frac{2c\,\text{Tan}[d+ex]^2}{b-\sqrt{b^2-4ac}}}+2\,\mathrm{i}\,\sqrt{2}\,a\,c\,\text{EllipticF}\left[\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\text{Tan}[d+ex]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+ex]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+ex]^2}{b-\sqrt{b^2-4ac}}}-$$

$$6\,\mathrm{i}\,\sqrt{2}\,a^2\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\text{Tan}[d+ex]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+ex]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+ex]^2}{b-\sqrt{b^2-4ac}}}+$$

$$6\,\mathrm{i}\,\sqrt{2}\,a\,b\,\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},\mathrm{i}\,\text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\operatorname{Tan}[d+e x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\operatorname{Tan}[d+e x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\operatorname{Tan}[d+e x]^2}{b-\sqrt{b^2-4ac}}}-$$

$$6\,i\sqrt{2}\,a\,c\,\operatorname{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},\ i\operatorname{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\operatorname{Tan}[d+e x]\right],\ \frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]$$

$$\left(1+\operatorname{Tan}[d+e x]^2\right)\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\operatorname{Tan}[d+e x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\operatorname{Tan}[d+e x]^2}{b-\sqrt{b^2-4ac}}}-$$

$$\left.4(-3a+b)\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\operatorname{Tan}[d+e x]\left(a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4\right)\right)\Big/$$

$$\left(12a\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,e\left(1+\operatorname{Tan}[d+e x]^2\right)\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}\right)$$

- **Problem 36: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\operatorname{Tan}[d+e x]^5}{\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\,dx$$

Optimal (type 3, 182 leaves, 8 steps):

$$-\frac{\operatorname{ArcTanh}\left[\frac{2a-b+(b-2c)\operatorname{Tan}[d+e x]^2}{2\sqrt{a-b+c}\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\right]}{2\sqrt{a-b+c}\,e}-\frac{(b+2c)\operatorname{ArcTanh}\left[\frac{b+2c\operatorname{Tan}[d+e x]^2}{2\sqrt{c}\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\right]}{4c^{3/2}e}+\frac{\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}{2ce}$$

Result (type 4, 125 619 leaves): Display of huge result suppressed!

- **Problem 37: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\operatorname{Tan}[d+e x]^3}{\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\,dx$$

Optimal (type 3, 141 leaves, 7 steps):

$$\frac{\operatorname{ArcTanh}\left[\frac{2a-b+(b-2c)\operatorname{Tan}[d+e x]^2}{2\sqrt{a-b+c}\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\right]}{2\sqrt{a-b+c}\,e}+\frac{\operatorname{ArcTanh}\left[\frac{b+2c\operatorname{Tan}[d+e x]^2}{2\sqrt{c}\sqrt{a+b\operatorname{Tan}[d+e x]^2+c\operatorname{Tan}[d+e x]^4}}\right]}{2\sqrt{c}\,e}$$

Result (type 4, 80 416 leaves) : Display of huge result suppressed !

- **Problem 38: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\mathrm{Tan}[d+e\,x]}{\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\,dx$$

Optimal (type 3, 79 leaves, 4 steps) :

$$-\frac{\mathrm{ArcTanh}\left[\frac{2\,a-b+(b-2\,c)\,\mathrm{Tan}[d+e\,x]^2}{2\,\sqrt{a-b+c}\,\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\right]}{2\,\sqrt{a-b+c}\,e}$$

Result (type 4, 57 267 leaves) : Display of huge result suppressed !

- **Problem 41: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\mathrm{Tan}[d+e\,x]^4}{\sqrt{a+b\,\mathrm{Tan}[d+e\,x]^2+c\,\mathrm{Tan}[d+e\,x]^4}}\,dx$$

Optimal (type 4, 662 leaves, 5 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b+c}\ \text{Tan}[d+e x]}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\right]}{2\sqrt{a-b+c}\ e}+\frac{\text{Tan}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{\sqrt{c}\ e\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)}-$$

$$\left(a^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(c^{3/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(a^{1/4}\left(\sqrt{a}-2\sqrt{c}\right)\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2\left(\sqrt{a}-\sqrt{c}\right)c^{3/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\ \sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\ \sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

Result (type 4, 579 leaves) :

$$\frac{\sqrt{\frac{3 a+b+3 c+4 a \operatorname{Cos}[2 (d+e x)]-4 c \operatorname{Cos}[2 (d+e x)]+a \operatorname{Cos}[4 (d+e x)]-b \operatorname{Cos}[4 (d+e x)]+c \operatorname{Cos}[4 (d+e x)]}{3+4 \operatorname{Cos}[2 (d+e x)]+\operatorname{Cos}[4 (d+e x)]}} \operatorname{Sin}[2 (d+e x)]}{2 c e}+$$

$$\left(1 \Big/ \left(\sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}}\right) i \sqrt{2} \left(\left(-b+\sqrt{b^2-4 a c}\right) \operatorname{EllipticE}\left[i \operatorname{ArcSinh}\left[\sqrt{2} \sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}} \operatorname{Tan}[d+e x]\right], \frac{b+\sqrt{b^2-4 a c}}{b-\sqrt{b^2-4 a c}}\right]+\right.\right.$$

$$\left(b+2 c-\sqrt{b^2-4 a c}\right) \operatorname{EllipticF}\left[i \operatorname{ArcSinh}\left[\sqrt{2} \sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}} \operatorname{Tan}[d+e x]\right], \frac{b+\sqrt{b^2-4 a c}}{b-\sqrt{b^2-4 a c}}\right]-$$

$$\left.2 c \operatorname{EllipticPi}\left[\frac{b+\sqrt{b^2-4 a c}}{2 c}, i \operatorname{ArcSinh}\left[\sqrt{2} \sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}} \operatorname{Tan}[d+e x]\right], \frac{b+\sqrt{b^2-4 a c}}{b-\sqrt{b^2-4 a c}}\right]\right) \sqrt{\frac{b+\sqrt{b^2-4 a c}+2 c \operatorname{Tan}[d+e x]^2}{b+\sqrt{b^2-4 a c}}}$$

$$\left.\sqrt{1+\frac{2 c \operatorname{Tan}[d+e x]^2}{b-\sqrt{b^2-4 a c}}}-\frac{4 \operatorname{Tan}[d+e x] \left(a+b \operatorname{Tan}[d+e x]^2+c \operatorname{Tan}[d+e x]^4\right)}{1+\operatorname{Tan}[d+e x]^2}\right) \Big/ \left(4 c e \sqrt{a+b \operatorname{Tan}[d+e x]^2+c \operatorname{Tan}[d+e x]^4}\right)$$

- **Problem 42: Result unnecessarily involves imaginary or complex numbers.**

$$\int \frac{\operatorname{Tan}[d+e x]^2}{\sqrt{a+b \operatorname{Tan}[d+e x]^2+c \operatorname{Tan}[d+e x]^4}} \, dx$$

Optimal (type 4, 436 leaves, 4 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b+c}\ \text{Tan}[d+e x]}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\right]}{2\sqrt{a-b+c}\ e}+$$

$$\left(a^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\,\text{Tan}[d+e x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

Result (type 4, 311 leaves) :

$$-\left(i\left(\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}}\,\text{Tan}[d+e x]\right],\frac{b+\sqrt{b^2-4 a c}}{b-\sqrt{b^2-4 a c}}\right]-\right.\right.$$

$$\left.\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4 a c}}{2 c},i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}}\,\text{Tan}[d+e x]\right],\frac{b+\sqrt{b^2-4 a c}}{b-\sqrt{b^2-4 a c}}\right]\right)$$

$$\left.\sqrt{\frac{b+\sqrt{b^2-4 a c}+2 c\,\text{Tan}[d+e x]^2}{b+\sqrt{b^2-4 a c}}}\sqrt{1+\frac{2 c\,\text{Tan}[d+e x]^2}{b-\sqrt{b^2-4 a c}}}\right)\Big/\left(\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4 a c}}}\,e\,\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

- **Problem 43: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{1}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\,dx$$

Optimal (type 4, 436 leaves, 4 steps) :

$$\frac{\text{ArcTan}\left[\frac{\sqrt{a-b+c}\ \text{Tan}[d+e\,x]}{\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\right]}{2\sqrt{a-b+c}\ e} -$$

$$\left(c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\ \frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)+$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\,\sqrt{c}},\ 2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\ \frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e\,x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e\,x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)$$

Result (type 4, 235 leaves) :

$$-\left(\mathrm{i}\ \text{EllipticPi}\left[\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c},\ \mathrm{i}\ \text{ArcSinh}\left[\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\ \text{Tan}[d+e\,x]\right],\ \frac{b+\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}}\right]\right.$$

$$\left.\sqrt{\frac{b+\sqrt{b^2-4\,a\,c}+2\,c\,\text{Tan}[d+e\,x]^2}{b+\sqrt{b^2-4\,a\,c}}}\ \sqrt{1-\frac{2\,c\,\text{Tan}[d+e\,x]^2}{-b+\sqrt{b^2-4\,a\,c}}}\right)\Big/\left(\sqrt{2}\,\sqrt{\frac{c}{b+\sqrt{b^2-4\,a\,c}}}\ e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right)$$

- **Problem 44: Result unnecessarily involves imaginary or complex numbers.**

$$\int\frac{\text{Cot}[d+e\,x]^2}{\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\,dx$$

Optimal (type 4, 707 leaves, 7 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b+c}\ \text{Tan}[d+e x]}{\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}\right]}{2\sqrt{a-b+c}\ e}-\frac{\text{Cot}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{a e}+\frac{\sqrt{c}\ \text{Tan}[d+e x]\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}{a e\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)}-$$

$$\left(c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(a^{3/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)+$$

$$\left(\left(2\sqrt{a}-\sqrt{c}\right)c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/$$

$$\left(2\,a^{3/4}\left(\sqrt{a}-\sqrt{c}\right)e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)-$$

$$\left(\left(\sqrt{a}+\sqrt{c}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\sqrt{a}\sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)\right.$$

$$\left.\sqrt{\frac{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}{\left(\sqrt{a}+\sqrt{c}\ \text{Tan}[d+e x]^2\right)^2}}\right)\Big/\left(4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}\right)$$

Result (type 4, 735 leaves) :

$$\frac{\sqrt{\frac{3a+b+3c+4a\,\text{Cos}[2(d+ex)]-4c\,\text{Cos}[2(d+ex)]+a\,\text{Cos}[4(d+ex)]-b\,\text{Cos}[4(d+ex)]+c\,\text{Cos}[4(d+ex)]}{3+4\,\text{Cos}[2(d+ex)]+\text{Cos}[4(d+ex)]}}\left(-\frac{\text{Cot}[d+ex]}{a}+\frac{\text{Sin}[2(d+ex)]}{2a}\right)}{e}+$$

$$\frac{1}{a\,e}\left(\left(i\left(-b+\sqrt{b^2-4ac}\right)\left(\text{EllipticE}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{c}{-b-\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{-b-\sqrt{b^2-4ac}}{-b+\sqrt{b^2-4ac}}\right]-\right.\right.\right.$$

$$\left.\text{EllipticF}\left[i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{c}{-b-\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{-b-\sqrt{b^2-4ac}}{-b+\sqrt{b^2-4ac}}\right]\right)\sqrt{1-\frac{2c\,\text{Tan}[d+ex]^2}{-b-\sqrt{b^2-4ac}}}\sqrt{1-\frac{2c\,\text{Tan}[d+ex]^2}{-b+\sqrt{b^2-4ac}}}\Bigg)\Bigg/$$

$$\left(2\sqrt{2}\sqrt{-\frac{c}{-b-\sqrt{b^2-4ac}}}\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}\right)+\left(i\,a\,\text{EllipticPi}\left[-\frac{-b-\sqrt{b^2-4ac}}{2c},\right.\right.$$

$$\left.i\,\text{ArcSinh}\left[\sqrt{2}\sqrt{-\frac{c}{-b-\sqrt{b^2-4ac}}}\,\text{Tan}[d+ex]\right],\frac{-b-\sqrt{b^2-4ac}}{-b+\sqrt{b^2-4ac}}\right]\sqrt{1-\frac{2c\,\text{Tan}[d+ex]^2}{-b-\sqrt{b^2-4ac}}}\sqrt{1-\frac{2c\,\text{Tan}[d+ex]^2}{-b+\sqrt{b^2-4ac}}}\Bigg)\Bigg/$$

$$\left.\left(\sqrt{2}\sqrt{-\frac{c}{-b-\sqrt{b^2-4ac}}}\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}\right)-\frac{\text{Tan}[d+ex]\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}}{1+\text{Tan}[d+ex]^2}\right)$$

- **Problem 45: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int\frac{\text{Tan}[d+ex]^7}{\left(a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4\right)^{3/2}}\,dx$$

Optimal (type 3, 235 leaves, 8 steps):

$$\frac{\text{ArcTanh}\left[\frac{2a-b+(b-2c)\,\text{Tan}[d+ex]^2}{2\sqrt{a-b+c}\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}}\right]}{2(a-b+c)^{3/2}e}+$$

$$\frac{\text{ArcTanh}\left[\frac{b+2c\,\text{Tan}[d+ex]^2}{2\sqrt{c}\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}}\right]}{2c^{3/2}e}+\frac{a\left(b^2-a(b+2c)\right)+\left(b^3+2a^2c-ab(b+3c)\right)\text{Tan}[d+ex]^2}{c(a-b+c)\left(b^2-4ac\right)e\sqrt{a+b\,\text{Tan}[d+ex]^2+c\,\text{Tan}[d+ex]^4}}$$

Result (type 4, 182 725 leaves): Display of huge result suppressed!

- **Problem 46: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[d+e x]^5}{\left(a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4\right)^{3/2}} \, dx$$

Optimal (type 3, 159 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2 a-b+(b-2 c) \text{Tan}[d+e x]^2}{2 \sqrt{a-b+c} \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}\right]}{2 (a-b+c)^{3/2} e}+\frac{a (2 a-b)+((a-b) b+2 a c) \text{Tan}[d+e x]^2}{(a-b+c) \left(b^2-4 a c\right) e \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}$$

Result (type 4, 57 597 leaves): Display of huge result suppressed!

- **Problem 47: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[d+e x]^3}{\left(a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4\right)^{3/2}} \, dx$$

Optimal (type 3, 154 leaves, 6 steps):

$$\frac{\text{ArcTanh}\left[\frac{2 a-b+(b-2 c) \text{Tan}[d+e x]^2}{2 \sqrt{a-b+c} \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}\right]}{2 (a-b+c)^{3/2} e}-\frac{a (b-2 c)+(2 a-b) c \text{Tan}[d+e x]^2}{(a-b+c) \left(b^2-4 a c\right) e \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}$$

Result (type 4, 57 592 leaves): Display of huge result suppressed!

- **Problem 48: Result unnecessarily involves higher level functions and more than twice size of optimal antiderivative.**

$$\int \frac{\text{Tan}[d+e x]}{\left(a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4\right)^{3/2}} \, dx$$

Optimal (type 3, 155 leaves, 6 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2 a-b+(b-2 c) \text{Tan}[d+e x]^2}{2 \sqrt{a-b+c} \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}\right]}{2 (a-b+c)^{3/2} e}+\frac{b^2-2 a c-b c+(b-2 c) c \text{Tan}[d+e x]^2}{(a-b+c) \left(b^2-4 a c\right) e \sqrt{a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4}}$$

Result (type 4, 57 615 leaves): Display of huge result suppressed!

- **Problem 49: Result more than twice size of optimal antiderivative.**

$$\int \frac{\text{Cot}[d+e x]}{\left(a+b \text{Tan}[d+e x]^2+c \text{Tan}[d+e x]^4\right)^{3/2}} \, dx$$

Optimal (type 3, 280 leaves, 12 steps):

$$-\frac{\text{ArcTanh}\left[\frac{2a+b\,\text{Tan}[d+e\,x]^2}{2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\right]}{2\,a^{3/2}\,e}+\frac{\text{ArcTanh}\left[\frac{2a-b+(b-2c)\,\text{Tan}[d+e\,x]^2}{2\sqrt{a-b+c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\right]}{2\,(a-b+c)^{3/2}\,e}+$$

$$\frac{b^2-2\,a\,c+b\,c\,\text{Tan}[d+e\,x]^2}{a\,(b^2-4\,a\,c)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}-\frac{b^2-2\,a\,c-b\,c+(b-2\,c)\,c\,\text{Tan}[d+e\,x]^2}{(a-b+c)\,(b^2-4\,a\,c)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}$$

Result (type 3, 694 leaves) :

$$\frac{1}{e}\sqrt{((3\,a+b+3\,c+4\,a\,\text{Cos}[2\,(d+e\,x)]-4\,c\,\text{Cos}[2\,(d+e\,x)]+a\,\text{Cos}[4\,(d+e\,x)]-b\,\text{Cos}[4\,(d+e\,x)]+c\,\text{Cos}[4\,(d+e\,x)])\,/}$$
$$\sqrt{(3+4\,\text{Cos}[2\,(d+e\,x)]+\text{Cos}[4\,(d+e\,x)]))}\left(-\frac{-b^3+3\,a\,b\,c+2\,b^2\,c-4\,a\,c^2-b\,c^2}{a\,(a-b+c)^2\,(-b^2+4\,a\,c)}-\right.$$
$$\left(4\,\left(b^4-4\,a\,b^2\,c-b^3\,c+2\,a^2\,c^2+3\,a\,b\,c^2-b^2\,c^2+2\,a\,c^3+b\,c^3+b^4\,\text{Cos}[2\,(d+e\,x)]-4\,a\,b^2\,c\,\text{Cos}[2\,(d+e\,x)]-3\,b^3\,c\,\text{Cos}[2\,(d+e\,x)]+2\,a^2\,c^2\right.\right.$$
$$\left.\left.\text{Cos}[2\,(d+e\,x)]+9\,a\,b\,c^2\,\text{Cos}[2\,(d+e\,x)]+3\,b^2\,c^2\,\text{Cos}[2\,(d+e\,x)]-6\,a\,c^3\,\text{Cos}[2\,(d+e\,x)]-b\,c^3\,\text{Cos}[2\,(d+e\,x)]\right)\right)\Big/\left(a\,(a-b+c)^2\right.$$
$$\left.\left.(-b^2+4\,a\,c)\,(3\,a+b+3\,c+4\,a\,\text{Cos}[2\,(d+e\,x)]-4\,c\,\text{Cos}[2\,(d+e\,x)]+a\,\text{Cos}[4\,(d+e\,x)]-b\,\text{Cos}[4\,(d+e\,x)]+c\,\text{Cos}[4\,(d+e\,x)])\right)\right)+$$

$$\frac{1}{2\,a^{3/2}\,(a-b+c)\,e}\left(-\frac{a^{3/2}\,\text{Log}\left[\text{Sec}[d+e\,x]^2\right]}{\sqrt{a-b+c}}+(a-b+c)\,\text{Log}\left[\text{Tan}[d+e\,x]^2\right]-\right.$$
$$a\,\text{Log}\left[2\,a+b\,\text{Tan}[d+e\,x]^2+2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right]+$$
$$b\,\text{Log}\left[2\,a+b\,\text{Tan}[d+e\,x]^2+2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right]-$$
$$c\,\text{Log}\left[2\,a+b\,\text{Tan}[d+e\,x]^2+2\sqrt{a}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right]+$$
$$\left.\frac{a^{3/2}\,\text{Log}\left[2\,a-b+(b-2\,c)\,\text{Tan}[d+e\,x]^2+2\sqrt{a-b+c}\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}\right]}{\sqrt{a-b+c}}\right)$$

Problem 51: Result unnecessarily involves imaginary or complex numbers.

$$\int\frac{\text{Tan}[d+e\,x]^2}{\left(a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4\right)^{3/2}}\,dx$$

Optimal (type 4, 981 leaves, 9 steps) :

$$-\frac{\text{ArcTan}\left[\frac{\sqrt{a-b+c}\;\text{Tan}[d+e\,x]}{\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}\right]}{2\,(a-b+c)^{3/2}\,e}+\frac{\text{Tan}[d+e\,x]\,\left(b^2-2\,a\,c-b\,c+(b-2\,c)\,c\,\text{Tan}[d+e\,x]^2\right)}{(a-b+c)\,\left(b^2-4\,a\,c\right)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}-$$

$$\frac{(b-2\,c)\,\sqrt{c}\;\text{Tan}[d+e\,x]\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}{(a-b+c)\,\left(b^2-4\,a\,c\right)\,e\,\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)}+$$

$$\frac{a^{1/4}\,(b-2\,c)\,c^{1/4}\,\text{EllipticE}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}}{(a-b+c)\,\left(b^2-4\,a\,c\right)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}+$$

$$\frac{c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}}{2\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)(a-b+c)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}-$$

$$\frac{\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,\text{EllipticF}\left[2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}}{2\,a^{1/4}\left(b-2\,\sqrt{a}\,\sqrt{c}\right)(a-b+c)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}-$$

$$\frac{\left(\sqrt{a}+\sqrt{c}\right)\text{EllipticPi}\left[-\frac{\left(\sqrt{a}-\sqrt{c}\right)^2}{4\,\sqrt{a}\,\sqrt{c}},2\,\text{ArcTan}\left[\frac{c^{1/4}\,\text{Tan}[d+e\,x]}{a^{1/4}}\right],\frac{1}{4}\left(2-\frac{b}{\sqrt{a}\,\sqrt{c}}\right)\right]\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)\sqrt{\frac{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}{\left(\sqrt{a}+\sqrt{c}\;\text{Tan}[d+e\,x]^2\right)^2}}}{4\,a^{1/4}\left(\sqrt{a}-\sqrt{c}\right)c^{1/4}\,(a-b+c)\,e\,\sqrt{a+b\,\text{Tan}[d+e\,x]^2+c\,\text{Tan}[d+e\,x]^4}}$$

Result (type 4, 831 leaves) :

$$\frac{1}{e}\sqrt{\frac{3a+b+3c+4a\,\text{Cos}[2(d+e x)]-4c\,\text{Cos}[2(d+e x)]+a\,\text{Cos}[4(d+e x)]-b\,\text{Cos}[4(d+e x)]+c\,\text{Cos}[4(d+e x)]}{3+4\,\text{Cos}[2(d+e x)]+\text{Cos}[4(d+e x)]}}$$

$$\left(\frac{(b-2c)\,\text{Sin}[2(d+e x)]}{2(-a+b-c)\left(b^2-4ac\right)}+\left(2b^2\,\text{Sin}[2(d+e x)]-4ac\,\text{Sin}[2(d+e x)]-4c^2\,\text{Sin}[2(d+e x)]+\right.\right.$$
$$b^2\,\text{Sin}[4(d+e x)]-2ac\,\text{Sin}[4(d+e x)]-2bc\,\text{Sin}[4(d+e x)]+2c^2\,\text{Sin}[4(d+e x)]\Big)\Big/\Big((a-b+c)\left(-b^2+4ac\right)$$
$$\left.(-3a-b-3c-4a\,\text{Cos}[2(d+e x)]+4c\,\text{Cos}[2(d+e x)]-a\,\text{Cos}[4(d+e x)]+b\,\text{Cos}[4(d+e x)]-c\,\text{Cos}[4(d+e x)])\Big)\right)+$$

$$\frac{1}{4(a-b+c)\left(-b^2+4ac\right)e\sqrt{a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4}}$$

$$\left(\frac{1}{\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}}\,\text{i}\sqrt{2}\left((b-2c)\left(-b+\sqrt{b^2-4ac}\right)\text{EllipticE}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]+\right.\right.$$

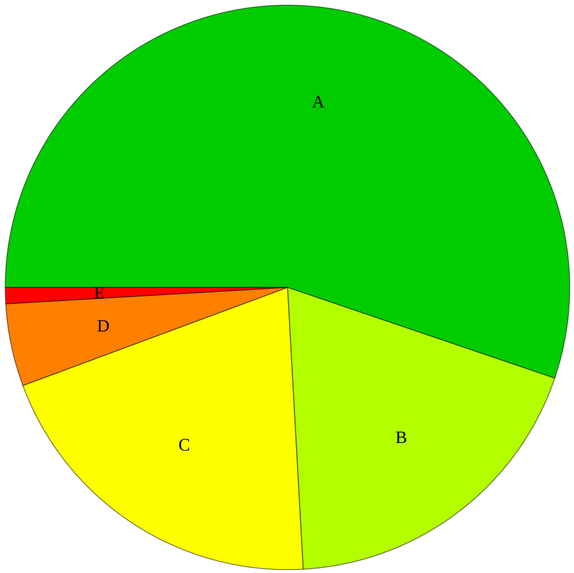
$$\left(b^2-b\sqrt{b^2-4ac}+2c\left(-2a+\sqrt{b^2-4ac}\right)\right)\text{EllipticF}\left[\text{i}\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]-$$

$$\left.2\left(b^2-4ac\right)\text{EllipticPi}\left[\frac{b+\sqrt{b^2-4ac}}{2c},\text{i}\,\text{ArcSinh}\left[\sqrt{2}\sqrt{\frac{c}{b+\sqrt{b^2-4ac}}}\,\text{Tan}[d+e x]\right],\frac{b+\sqrt{b^2-4ac}}{b-\sqrt{b^2-4ac}}\right]\right)$$

$$\left.\sqrt{\frac{b+\sqrt{b^2-4ac}+2c\,\text{Tan}[d+e x]^2}{b+\sqrt{b^2-4ac}}}\sqrt{1+\frac{2c\,\text{Tan}[d+e x]^2}{b-\sqrt{b^2-4ac}}}-\frac{4(b-2c)\,\text{Tan}[d+e x]\left(a+b\,\text{Tan}[d+e x]^2+c\,\text{Tan}[d+e x]^4\right)}{1+\text{Tan}[d+e x]^2}\right)$$

Summary of Integration Test Results

4211 integration problems



A - 2325 optimal antiderivatives

B - 796 more than twice size of optimal antiderivatives

C - 852 unnecessarily complex antiderivatives

D - 199 unable to integrate problems

E - 39 integration timeouts